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FROM

Daniel S. Durrie

of Madison, Wis.

# SIXTH ANNUAL REPORT

OF THE

# WISCONSIN DAIRYMEN'S ASSOCIATION,

HELD AT

*WHITEWATER, WIS., JANUARY 23-24, 1878.*

---

REPORT OF PROCEEDINGS, ANNUAL ADDRESS OF THE PRESIDENT, AND INTERESTING ESSAYS

RELATING TO THE

## DAIRY INTERESTS.

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COMPILED BY

D. W. CURTIS, SECRETARY.

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MADISON, WIS.:
DAVID ATWOOD, PRINTER AND STEREOTYPER.
1878.

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DAVID ATWOOD, PRINTER AND STEREOTYPER.
1878.

1879, June 13.
Gift of
Daniel S. Durrie,
of Madison, Wis. (6th, 7th Rep.)

# OFFICERS.

## 1878.

PRESIDENT:

**Hon. H. F. DOUSMAN,**
Waterville, Waukesha Co.

VICE PRESIDENTS:

| | |
|---|---|
| **T. C. Blanchard,** | **Judge Geo. W. Weeden,** |
| Oakland, Jefferson Co. | Sheboygan Falls, Sheboygan Co. |

HONORARY VICE PRESIDENTS:

| | |
|---|---|
| **Chester Hazen,** | **Stephen Faville,** |
| *Ex-President Wis. Dairymen's Ass'n.* | *Ex-President N. W. Dairymen's Ass'n,* |
| Ladoga, Fond du Lac Co. | Lake Mills, Jefferson Co. |

**Hon. Hiram Smith,**
*Ex-President Wisconsin Dairymen's Association,*
Sheboygan Ealls, Sheboygan Co.

SECRETARY:

**D. W. CURTIS,**
Fort Atkinson, Jefferson Co.

TREASURER:

**O. P. CLINTON,**
Waukesha, Waukesha Co.

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# ARTICLES OF ASSOCIATION.

[*Adopted in* 1872.]

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ART. I. The name of this organization shall be, the Wisconsin Dairymen's Association.

ART. II. The officers of the association shall consist of a president, two vice presidents, and a secretary and treasurer.

ART. III. The president, vice presidents, secretary and treasurer shall constitute the executive board of the association.

ART. IV. The officers of the association shall be elected at the annual meeting, and shall retain their office until their successors are chosen.

ART. V. The regular annual meeting of the association shall occur on the second Tuesday of February, in each year, at such place as the executive board shall designate.

ART. VI. Any person may become a member of this association, and be entitled to all its benefits, by the annual payment of one dollar.

ART. VII. The executive board shall have power to call special meetings whenever and at such places as in their judgment its interests so demand.

ART. VIII. The officers of the association shall perform such other duties as usually devolve upon the officers of like associations.

ART. IX. The treasurer shall have the custody of all moneys belonging to the association, and authority to pay out the same whenever an order is presented, signed by the president and secretary.

# LIST OF MEMBERS,

## 1878.

---

| | |
|---|---|
| Ayer, H. M | Lodi. |
| Blanchard, Thos. C. | Oakland. |
| Butler, D | Kenosha. |
| Benson, B. L | Genoa Junction. |
| Berry, Wm | Taycheedah. |
| Benedict, A M. | Mazomanie. |
| Billings, Charles | Oconomowoc. |
| Boice, A. A | Lodi |
| Brown, Solon | Jefferson. |
| Baker, Benj. P | New York City, 129 E. 34th St. |
| Barker, Charles | Portage. |
| Billet, Geo | Whitewater. |
| Beach, C. R | Whitewater. |
| Barckley, B. F | Elgin, Ill. |
| Curtis, D. W | Fort Atkinson. |
| Curtis, F. C | Rocky Run. |
| Cheever, D. G | Clinton. |
| Clough, James | Edgerton. |
| Crossfield, F. O. | Oakland. |
| Champney, G. W. | Oakland. |
| Chipman, A | Sun Prairie. |
| Cole, Norman | Brodhead. |
| Cowles, J A | Elkhorn. |
| Carpenter, E. J | Beloit. |
| Clifford, Geo. F | Mazomanie. |
| Chapman, H. N | Randolph. |
| Chase, O. C | Elkhorn. |
| Charles, R. B | Lima Center. |
| Cartwright, C. S | Rome. |
| Conger, H. A | Whitewater. |
| Conover, S. H, | Plymouth. |
| Colt, R. P | Poysippi. |
| De Land, A. D | Sheboygan Falls |
| Dousman, H. F | Waterville. |
| Deveraux, E | Evansville. |
| Flack, J. G | Elkhorn. |
| Foster, A | Sugar Creek. |
| Faville, K. E | Lake Mills. |
| Faville, Stephen | Lake Mills. |
| Foss, Jacob | Woodland. |
| Gleason, G | Whitewater. |
| Galloway, Wm | Whitewater. |
| Green, L. B | Hebron. |
| Godfrey, Henry | Whitewater. |
| Gibson, Charles | Lind. |
| Hoard, W. D | Fort Atkinson. |
| Hazen, Chester | Ladoga. |
| Hart, J. L. | Watertown. |
| Hoxie, B. S | Cooksville. |
| Hacker, T. L | Cottage Grove. |
| Houston, R. S | Kenosha. |
| Hart, G. S. & Howell | 35 Pearl Street, New York. |
| Humphrey, H | Mazomanie. |
| Ingalls, E. P | Milford. |
| Ingersoll, J. B | Port Washingt'n |
| Kemp, C. W. | Cooksville. |
| Kemp, Geo | Waupun. |
| King, E | Whitewater. |
| Karlen, C | Juda. |
| Leggett, A. W. & F. W | 39 Pearl Street, New York. |
| Loveland, D. K | Waukesha. |
| McCutchan, R. F. | Whitewater. |
| Mown, J. J | Oconomowoc. |
| Morse, A E | Bloomington, |
| Millard. C. J | Lake Mills. |
| Morrison, J. S | Fort Atkinson |
| McPherson, Jas | Fort Atkinson |
| Marshall, Wm | Whitewater. |
| Moulton, Fr'cis D. | New York. |
| Olin, O. C | Oakland. |
| Olin & Clinton | Waukesha, |
| Orledge, W | Kenosha. |
| Orvis, James | Oakfield. |

| | |
|---|---|
| Peebles, E. | Peebles. |
| Phepls, Prof. W. F. | Whitewater. |
| Porter, Edward | Waukesha. |
| Picket, Edward | Picket's Station. |
| Pierce, S. C. | Brodhead. |
| Pratt, M. | Whitewater. |
| Prosser, Warren | Ft. Atkinson. |
| Porter, John | Mazomanie. |
| Prentice, C. M. | Dane. |
| Pardee, A. G. | Eagle. |
| Puffer, W. C. | Ft. Atkinson. |
| | |
| Ridge, John | Whitewater. |
| Richards, Thos. | Cataract. |
| Robert, Robertson | Oakland. |
| Roberson, D. C. | Mauston. |
| Root, L. B. | Whitewater. |
| | |
| Smith, Hiram | Sheboygan Falls. |
| Starin, H. J | Whitewater. |
| Smith, J. A. | Sheboygan. |
| Stearns, G. O | Monroe. |
| Steel, J. L. | Genesee. |
| Sparta Cheese Co. | Sparta. |
| Shultis, Frank | Waukesha. |
| Strohn, C. J | Oconomowoc. |
| Smith, R. B | Ft. Atkinson. |
| Smith, J. M. | Green Bay. |
| Sherman, Jas. M. | Delavan. |
| Stowe, Wm | Whitewater. |
| Skidmore, O. P. | Stockbridge. |
| | |
| Trippe, D. C. | Whitewater. |
| Thurber, H. K. & F. B. | New York. |
| | |
| Vanderheiden, A. | Wrightstown. |
| Vosburgh, J. B. | Richmond, Ill. |
| | |
| White, H. D. | Kenosha. |
| Wilkinson, H. J. | Whitewater. |
| Wells, Jacob | Lodi. |
| Woolen, D. A. | Algona, Iowa. |
| Wright, W. E. | Whitewater. |
| Wheaton, A. H. | Auroraville. |
| White, J | Waterville. |
| White, W. C. | Kenosha. |
| Warne, Dr. H. | Whitewater. |
| White, C. D | Kenosha. |
| Woodruff, H. S. | Janesville. |
| Wilton, Wm. | Eagle. |
| Wescott, W. S | Monroe. |
| Washburn, J. H. | Kenosha. |
| Warren, Carter & Co | 161 S. W. St. Chi. |
| Weeden, Geo. W. | Sheboygan. |

# WISCONSIN DAIRYMEN'S ASSOCIATION.

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## SIXTH ANNUAL SESSION.

*Whitewater, January* 23 *and* 24, 1878.

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## PROGRAMME:

### WEDNESDAY.

12 M. — Organization of convention.

2 P. M. — Address of Welcome, by Hon. T. D. Weeks, of Whitewater. Response by Hon. Hiram Smith, of Sheboygan Falls.

2:45 P. M. — Report of Secretary and Treasurer, and appointment of committees.

3:30 P. M. — Opening Address by President A. D. DeLand.

4:00 P. M. — The Dairy Interest in Wisconsin, and the Inducements for Further Development, J. H. Wilkinson, Whitewater; W. D. Hoard, Ft. Atkinson (editor Jefferson County Union).

4:50 P. M. — Cheese Making, and Over Production, C. H. Wilder, Evansville; H. F. Douseman, Waterville; B. F. Hoxie, Cooksville.

7:00 P. M. — Dairying as an Elevating and Intellectual Occupation, J. A. Smith, Sheboygan.

7:30 P. M. — Industrial Education, President Phelps, of Whitewater Normal School.

8:15 P. M. — How Much Money Can a Man Afford to Make? Hon. E. D. Coe, editor Whitewater Register.

8:40 P. M. — Butter Making in Wisconsin, J. S. Beach, Whitewater; Dr. L. W. Wicks, Oconomowoc; Asa Foster, Elkhorn.

### THURSDAY.

9:00 A. M. — What are the Chacteristics of the Best Cheese, and How is it Made, Especially Early or Hay Cheese? Hiram Smith, President N. W. D. Association.

9:40 A. M. — Cows for the Dairy, and How to Breed them, Prof. Frank H. Hall, Principal Normal and Industrial School, Sugar Grove, Illinois; Thos. H. Glenn, agr'l editor Western Rural, Chicago; Chester Hazen, Ladoga.

11:30 A. M. — Dairy Farming as a Renovator of Impoverished Soils, F. C. Curtis, Rocky Run; S. G. West, Sec'y Walworth County Agr'l Soc., Elkhorn,

2:00 P. M. — Election of officers and award of prizes.

2:40 P. M. — Improved Cultivation of the Farm and Farmer a Necessity in Dairying, J. M. Smith, Green Bay, Pres't Wis. Hort'l Soc'ty; C. F. Holt, Kenosha; J. G. Picket, Picket's Station.

3:30 P. M. — Feed of Cows, I. Boise, Davis' Junction, Illinois; W. C. White, Kenosha; W. S. Wescott, Monroe; D. L. Black, Elkhorn.

5:00 P. M. — Paper by R. McGlincy, Sec'y N. W. D. Association, and editor Elgin (Ill.) Advocate.

7:00 P. M. — Dairy Banquet and Sociable, to be opened with a paper on the wonderful art of "Brewing Cheese," by George Washington Peck, Dairy Editor and Home Missionary to the LaCrosse Sun.

# ADDRESSES, PAPERS AND DISCUSSIONS

AT THE

## SIXTH ANNUAL MEETING

OF THE

# WISCONSIN DAIRYMEN'S ASSOCIATION

*Held at Whitewater, January 23d and 24th, 1878.*

---

The sixth annual meeting of the Association was held in Bowers' Hall January 23d, at 12 o'clock M., the Hon. A. D. DeLand, of Sheboygan Falls, president, in the chair.

The convention was called to order; and

W. D. Hoard moved that a committee of three be appointed by the chair on resolutions.

Hiram Smith moved that the chair appoint a committee of three on dairy utensils.

And a committee of three who should appoint the judges on butter and cheese.

That the judges should be required to bring the prize article upon the stage and tell why they were the best.

The chair appointed W. D. Hoard, Chester Hazen, J. G. Picket, R. F. McCutcheon and F. C. Curtis such committee.

W. D. Hoard moved that the chair appoint a committee of three to suggest names for officers of the Association for the ensuing year.

On motion, the convention adjourned until 2 o'clock.

*Afternoon Session.*

President DeLand called the convention to order, and introduced the Hon. T. D. Weeks, who welcomed the dairymen to Whitewater, heartily and eloquently, putting the convention in the best of spirits.

## ADDRESS OF WELCOME.

*Mr. President, and Gentlemen of the Wisconsin Dairymen's Association:*—I have not the honor of being president of our village, nor yet one of its trustees, nevertheless, I have the pleasure as a private citizen, for and in behalf of our city fathers and the entire community, of welcoming you to our village and our homes. We have not decked ourselves in holiday attire as we would have done in the leafy month of June, and our outward greeting is not so pleasant and cheerful as it would have been had you met us in the golden summer time; still it is none the less hearty, you, none the less welcome. The object of your convention is, as I understand it, to consult together as to the best means of promoting one of the most important industries of the state. You are gathered here from all parts of the commonwealth, and I see, by your programme, that you are favored with the presence of distinguished gentlemen from abroad. Your knowledge and experience must give to your discussions a value from which those here, engaged in like pursuits, must derive great benefit. It is not long ago that we supposed no good butter or cheese could be made except near Philadelphia, in Orange and Lawrence counties, New York, and perhaps Northern Ohio. We were told that we had not the climate, the grasses, or the water necessary to make good dairy products, and there was no use in trying so to do. Stern necessity, however, compelled us to make the experiment. Failure upon failure demonstrated the fact that the raising of wheat was financial suicide, and something else must be done to prevent the mortgage on the farm from being foreclosed. Some of our energetic farmers, notwithstanding the croakings of the east, had faith to believe the dairy would pay even in Wisconsin, and determined to try it. I recollect when one of our now prominent dairymen went to Chicago to see what encouragement he could get for engaging in the business, and what he said on his return. The dealers there told him, and were doubtless honest in it, that he could find no market for his products and the enterprise would be a failure. Notwithstanding this, gentlemen, he and you went ahead. In due time you formed this association, and you have already shown to the world that Wisconsin has the climate, has the grasses, and has the water, with proper skill and knowledge, to make cheese equal to the best, and butter that Chicago dealers are anxious to get, and that sells for as much in the Boston and New York markets as any from New York. This result is due, in a great measure, to your association and the gentlemen who compose it. We are therefore glad that you have met with us. Candor compels us to admit that even in Whitewater, where the dairy interest has received so much attention, we still have poor butter. It is not long since, my better half informed me that we were out of butter, and company coming. And so like a good husband that I am, I took my basket and came down town for the needed article. I went into one of our first class grocery houses and asked for butter. I was told that they had it, but it was not first class. I then tried another; they had good butter, but would not warrant it, "gilt edged," and so I went to a third. Here I found that article for which I was in search, and was asked to step down cellar and see it. I said, I will take your word, bring it up. The grocery man went down and came back with just ¾ of a pound, and said that was all he had left, and so you see, gentlemen, why we are glad you have met here. I once heard a woman say, that the "way to a man's affections was, by the way of his stomach." At the time, I thought it a hard saying, but after all there is some truth in it. After the toils, and cares and perplexities of the day, let a man go home and sit down to a good, wholesome, inviting meal, and how soon will the shadows lift and the sunshine of peace and happiness and contentment light up the family circle. What is more conducive to the meal of which I speak, than good butter. Hence, our wives welcome you here. They want their husbands to love them, and their homes happy, and they expect you will contribute somewhat to that desired end. But I am detaining you too long. I see that you have before you a varied and interesting programme, beginning in a "week" and humble manner, but closing with all the brilliancy which the dairy editor of the La Crosse Sun, with his base burning Radiant home, is able to spread upon the scene. Midway, between these extremes, I see Hoard, the noblest

Roman of them all. It is said that he has the faculty of telling good butter and cheese, by the smell. Though we have not equal *facilities*, yet we trust he will be able to impart some of his knowledge to us, and if he does, we shall be more than grateful, that you have chosen Whitewater as the place of your meeting. I trust you will have a pleasant and profitable session. Again, gentlemen, I welcome you to our village and our homes. Make yourselves at home, but if, during your gastronomic investigations among us, any of you should discover any necessity for this convention having been called here. why the less said about that, the better.

Response by Hon. Hiram Smith, of Sheboygan Falls:

In behalf of the dairymen of Wisconsin, permit me to extend thanks to the enterprising citizens of Whitewater for this cordial welcome so courteously expressed by your chosen representative, the Hon. T. D. Weeks, who has, in his kindly greeting, given evidence of an intelligent comprehension of the value and importance to the people of this state of the enterprise in which we are engaged. And an enterprise that is steadily increasing in value and volume, and now has the capacity to export over 20,000,000 pounds of cheese from this state annually, valued at $2,000,000. The amount of butter used and exported, also runs into the millions. It is an enterprise that gives employment to a greater number of men, women and children than any other one occupation in the state. The laborers are liberally and promptly paid, and from whom come no indications of strikes or complaints. It gives employment to skilled labor; encourages scientific investigations; induces experiments that are constantly resulting in improved methods in every department of dairy farming. The dealers engaged in this enterprise are in the main, honorable and capable men, who make no attempt to get up a "corner," never sell "short," have no "puts" or "calls"; but all the transactions are real and tangible, and are conducted by men of large capital, and by men of small means, to equal advantage. There is no opportunity or desire for the "big fish" to eat up the little ones, for all the parts work to the mutual advantage of the whole. There is no danger, that the avails will ever be concentrated in the hands of the few. for the inevitable result is, that it is divided and subdivided among the many, and is universally used to improve the farm, to beautify the home, to educate the children, and to increase the knowledge and culture of the present and the rising generation. We are not so vain as to suppose that the courtesies shown us on this occasion are in consequence of the personal popularity of any of the officers or members, for so far as I know, none of them ever held the office of president of a savings bank, or a life insurance company, or has by other means been able to save $50,000 a year out of an annual salary of $5,000. Neither have we the cheap notoriety of being great financiers, able to prove (by argument) that it would be disastrous to buisness and ruinous to the people if the government should pay her past due notes as soon as she had the money, or on the other hand able to prove (by argument) that it would be fraud and rascality for the government to pay her obligations in such commodity as the contracting parties specified, without regard to the sickly sentimentality, and etherialized (supposed) understanding, that like some fungus growth, has of late, been striving to struggle into life. But not being engaged in any scheme to catch the popular breeze, and only intent to practice the useful, we value more highly the courtesies shown on this occasion that they were extended to an enterprise instead of to men. For men may come, and men may go, but dairying goes on for ever. Among the many eccentricities of character, the angularities of some organizations, and the ignorant, suspicious nature of others, that buisness men engaged in any enterprise, inevitably must, who misunderstand our motives, misrepresent our speech, and conduct and cast suspicions upon honorable transactions. It is a relief to turn from such contemplations to the pleasant surroundings of this afternoon, where earnest working men are appreciated and encouraged, honored by the presence of such an assembly, so largely represented by the intelligence, beauty, and culture, of this pleasant town. It will be a powerful incentive to all of us, to strive more earnestly to be worthy of the attentions bestowed upon us. And it is with no unmeaning formality that I again most cordially thank you.

President DeLand appointed the following committees:

*On Dairy Utensils—*

Chester Hazen, Ladoga,
J. G. Picket, Picket's Station.
J. B. Ingersoll, Port Washington.

*On Nomination of Officers—*

J. A. Smith, Sheboygan.
O. C. Olin, Oakland.
J. B. Vosburg, Genoa Junction.

*On Resolutions—*

W. D. Hoard, Fort Atkinson.
J. L. Hart, Watertown.
Hiram Smith, Sheboygan Falls.

*On Dairy Statistics—*

Wm. Fisher, Mondovia, Buffalo county.
C. P. Skidmore, Stockbridge, Calumet county.
H. M. Ayer, Lodi, Columbia county.
C. M. Prentice, Dane, Dane county.
G. R. Talbot, Juneau, Dodge county.
James Orvis, Oakfield, Fond du Lac county.
A. E. Morse, Bloomington, Grant county.
W. S. Wescott, Monroe, Green county.
W. D. Hoard, Fort Atkinson, Jefferson county.
D. C. Robinson, Mauston, Juneau county.
J. B. Vosburgh, Genoa Junction, Kenosha county.
A. Ecke, Meeme, Manitowoc county.
A. D. Thomas, Good Hope, Milwaukee county.
C. H. Smith, Tomah, Monroe county.
E. M. Gowell, Greenville, Outagamie county.
J. B. Ingersoll, Port Washington, Ozaukee county.
G. J. Caswell, Lone Rock, Richland county.
C. H. Wilder, Evansville, Rock county.
S. Littlefield, Plymouth, Sheboygan county.
Robt. Pearsons, Sharon, Walworth county.
H. F. Dousman, Waterville, Waukesha county.
E. W. Brown, Waupaca, Waupaca county.
A. H. Wheaton, Auroraville, Waushara county.
J. G. Picket, Picket's Station, Winnebago county.

Chester Hazen in the chair.

# ANNUAL ADDRESS

### BY HON. A. D. DELAND, PPESIDENT.

It has been the custom of this Association to have the presiding officer deliver an address at its annual meetings.

I regret that the society was not more fortunate in the selection of the person to perform that duty, and trust it will make a better selection in the future. The field from which to produce something of interest and value for an opening address has been cropped and recropped, like many wheat fields in this state, till there is nothing it will produce but sorrel, but, with your indulgence, I will briefly state some of my ideas pertinent to the general subject which we have met here to discuss.

The general business depression, affecting all branches of business at this time, is not felt as much by those engaged in the production of cheese as it is by the merchant, the manufacturer, and the farmers who make wheat, pork, or beef, the main production of the farm. Why it is that those farmers having a farm favorable to dairying will still continue to plow and sow, wearing themselves and their families out in an endeavor to make money by wearing out and exhausting the fertility of the soil is beyond my ability to answer. The past few years certainly have taught us that no branch of agriculture is more remunerative than dairying, and as we can only judge of what it will be in the future by what it has been in the past, it may be safe to predict a fair return for our dairy products the coming year.

The excess of receipts of cheese in New York for the year just closed is some 244,000 boxes over the previous year, and the excess of exports is reported at 270,000 boxes for the same time.

Liverpool reports 13,000 boxes less on hand, and London 5,000 more, while New York has less on hand than at this time last year. The amount held by the factories cannot vary much from previous years. This shows that the consumption of cheese has increased, both in this country and in England, and cannot but inspire us with hope and confidence in the coming year.

We can increase the home consumption of cheese, by cutting for our patrons only good, nice cheese, and by selling to grocery men only good cheese. Too often the factories cut for their patrons damaged, sour or poor cheese, thereby engendering ill feeling and discouraging the patron for calling for much cheese. It is short-sighted policy for factories to dispose of their poor cheese, should they be so unfortunate as to have such, to their home trade. Consign it to a commission house or, better, to the pig pen.

While we would continue to increase the quantity, we should not overlook the quality. As has been said before, "improvement in quality is the best guaranty of future profits. To become skillful as manufacturers, or successful as dairymen, we need all the enlightenment and encouragement possible upon this subject, and I consider the Wisconsin Dairymen's Association an important auxiliary in disseminating this knowledge.

Through the liberality of the last legislature an act was passed appropriating a sufficient amount of money to publish our annual reports, thereby furnishing hundreds of farmers with information derived from the valuable papers and addresses delivered at our annual meetings, and which many of them would not have if the society published them. The last report was published by the state and compares favorably with other reports of like character; it is very complete, and reflects much credit on our efficient secretary in its arrangement.

A few words in regard to the sale of cheese may not be amiss at this time.

The past season is unparalleled in the various fluctuations of the market. The market opened at 12½ to 13 cents for April and first of May make of cheese at the factories, and dropped suddenly to 10 and 9 cents, where it remained for a longer time than we had reason to expect, judging from past experience. August and September cheese sold at 12 to 13 cents, which was from one to two cents more per pound than the cheese sold for the remainder of the season, consequently those who held the fall make for an increased price over August and September, as has usually been the case previous years, were doomed to disappointments. That "coming events cast their shadows before," may be true, yet few of us were wise enough to discover the "shadow" and sell at just the right time. The best rule to adopt is to sell when the cheese is ready for market, at the best obtainable prices; do not hold, thereby losing in shrinkage and often resulting in a depreciation in quality, and consequently a lower price than might have been obtained if put on the market when all right.

The practice of twenty or thirty years ago of keeping the cheese till fall, and then sending it to market in barrels will not do in this age of 'fast men' and 'fast horses.' It cannot be denied that our Dairy Boards of Trade furnish the best means for keeping informed in regard to the market, and is the best and only place where we should make our sales. Prices are quoted, by telegraph, on the day of meeting, and the salesman knows just what to ask for his cheese. Buyers can visit the several factories a day or two previous to the meeting of the board and test the cheese, as well as a day or two after, and having seen the style and make of a factory a few times, it will not be necessary to incur the expense of going to the factories for a supply, but they can attend the meetings of the board, and buy more cheese in half a day than they could by riding through the country a week. I regret that factories do not avail themselves of all the advantages of a Dairy Board of Trade by selling only at its meetings.

The several dairy fairs held the past season have been a great benefit to the dairyman and dealer and should be largely encouraged.

While our State Association does not feel able to compete with the Northwestern in offering premiums on its products, yet through the enterprise and liberality of several dealers in dairy goods, we are enabled to offer several valuable prizes at this meeting, and I trust we will have a creditable show of dairy products for this season of the year.

Many things have been learned, and much remains yet to be learned pertaining to dairying. Verily, a wide field is before us!

Believing that this, our sixth annual meeting, will elicit much valuable information from more competent explorers, I wish you, kind citizens and fellow dairymen, a prosperous and happy year.

## THE DAIRY INTEREST IN WISCONSIN AND THE INDUCEMENTS FOR FURTHER DEVELOPMENTS.

By H. J. WILKINSON, WHITEWATER.

Agricultural Editor Whitewater Register.

The average writer or speaker can hardly resist the temptation to dilate, whenever occasion offers on the amazing rapidity with which American institutions and industries have sprung into existence, and astonished the world with their remarkable vigor and unparalleled growth.

Nor is it to be wondered at, that such is the case; for much as we may desire to avoid unseemly boasting, and mere egotism, the fact still remains, that no people ever lived, who worked out for themselves, in so short a time so great a measure of home comfort and happiness, and security against want, as can be found in the homes of thousands who dwell in the northwest.

Not a few are yet among us who staked the first claims, built the first cabins, and turned the first furrows, in the region where now dwell more than ten millions of people, surrounded by the elements of wealth and all the advantages for social comfort and refinement that pertain to civilization in much older countries. Circumstances, it is true, have been favorable to such a development, a fertile soil, a hospitable climate, a chain of great lakes and rivers leveling out of the sea, the great highway of nations, immunity from the scourge of warlike invasion or pestilence or famine, and a government that at least cannot be said to have governed too much, have all worked together in building up a magnificent empire in a single generation of men.

It has also become apparent that a new era has dawned on the agricultural world. The tidal wave of progress, for the first time in the history of mankind, has swept with marked effect, over field and farm, as well as workshop and factory, old methods of performing labor have given place to new ones, and old theories have become obsolete. It is not an easy task now to find a young man who can sow and reap as our fathers did, or swing the scythe and cradle, and it might be added with truth perhaps, that to find one who seriously cares to master those old time accomplishments, would be a task, harder still.

Conspicuous among those who are revolutionizing the industries of the nation are to be found the dairymen.

In inquiry and investigation; in experiment and invention; with untiring effort and unflagging zeal they stand in the front rank of intelligent workers. Radical changes in the manner of conducting the industry have already been wrought by them; but inquiry among the masses is more active then ever before. Valuable inventions have resulted from experiment and investigations; yet experiment and investigation still continue the order of the day, and science holds open court in every cheese factory and creamery in the land.

The dairy interest in Wisconsin is identical with the dairy interest in the entire Northwest. To speak of the one in particular is to treat of the other in general. The same characteristics have marked the development of the industry in Wisconsin or in Illinois and Iowa. Suckers and Hawkeyes and Badgers alike. did not for years dare to dispute the oft-repeated assertion that "good butter could not be made in these respective states; and were long subjected to the mortification of seeing it quoted in eastern markets as "western grease butter."

It was said, and with some degree of truth probably, that the wild grasses gave a disagreable flavor to the milks, which was in turn commmunicated to the butter. Unless recollection is at fault, it was also asserted that the water was not good, and injured the keeping qualities of the butter, and intensified the unpalatable flavor imparted by the grasses.

A similar difficulty was experienced by pioneers in cheese making in placing their product on the market; and the extent to which Wisconsin cheese was sold by middlemen to consumers as "New-York factory" can only be justified on the ground, that if the buyer did not get exactly what he called for, he got something near as good, and just as nearly worth his money.

All this a few short years have changed, and to-day the dairymen of Wisconsin find ready sale for their product, in the markets of the old world and new. Profitable dairying in Wisconsin is assured, and the industry is established on a firm and reliable foundation. It commends itself strongly as a specialty to many, and to the general farmer as a profitable feature of his farming operations.

If dairymen may be fairly satisfied with the progress made in establishing a reputation for good quality of their product, the rapid increase in the amount of the product is still more a cause for wonder and congratulation. The entire dairy product of the state in 1850 is set down at 4,034,000 ℔s. In 1860, at 14,765,000 ℔s. In 1870, at 24,064,000 ℔s. and in 1876, at 67,130,000 ℔s. The product of 1877, of which I have seen no estimate undoubtedly reached the near neighborhood of 75,000,000 ℔s.

In 1866, the entire amount of dairy product shipped over the Milwaukee & Prairie du Chien Railway is comprised in the single item of 1,218,000 lbs of butter, nearly one-half of which was shipped from Prairie du Chien, and, doubtless, came from Iowa. In 1853, Milwaukee shipped 92,000 lbs of butter. In 1876 the shipments of butter and cheese from that port aggregated 10,829,000 lbs. At the state fair, held in Milwaukee in 1853, the judges on dairy products had a serious time of it. Two tubs and four jars of butter and six cheeses were presented for examination and competition.

It is claimed, by those whose advantages for observation should enable them to judge correctly, that a large portion of our state is peculiarly well adapted to dairying, and that the limits of possible production can only be guessed at, and not defined.

If we glance for a moment at the development of the industry in this locality within the last dozen years, the figures will be still more surprising. It hardly seems possible that the entire shipment of dairy product from this point in 1866, only 11 years ago, could have amounted to no more than 6,750 lbs of butter, not a pound of cheese mentioned. I am told that the shipment in 1877 aggregated over a quarter of a million pounds of cheese, and more than a quarter of a million of pounds of butter. And the number of those in the section of country tributary to this village, who will make dairying a specialty, will be largely increased in 1878.

It may be interesting to recur, for a moment, to opinions held and published 25 years ago in regard to the dairying in Wisconsin.

In the volume of transactions published by the State Agricultural Society in 1852, Mr. B. F. Adams, in an article written at the solicitation of the secretary of the society, says: "Those farmers who have turned their attention to the business are, many of them, of the opinion that it cannot be made a source of great profit, and, consequently, do not prosecute it with the expectation of realizing much therefrom. They regard our soil as not adapted generally to the growth of grass. At the present time many of our farmers keeping from two to six cows do not make butter enough for their own use. But little is expected, and they are not disappointed in their expectations."

He urges, however, more attention to the business, and points out the road which has been traveled in achieving the present success.

In speaking of the inducements for the further development of the industry, in our midst, it is no part of my purpose to urge a rapid increase in the future in the amount of the product. That is quite likely to take place as fast as is compatible with a healthy condition of the business. Our people are quite too apt to embark in new enterprises with a grand rush, that sometimes threatens financial, if not social, revolution. The famer, who is considering the question of making dairying a specialty, should take a careful survey of the ground beforehand; whether his farm is well adapted to the business; the expense that will be needed to put his farm and buildings in the proper condition and shape to enable him to take the care of his cows necessary, to insure him the best returns from them. If he proposes to make butter, he should consider the expense of fitting up with the conveniences that will enable him, with skillful manufacture, to produce an article that will attract attention by its merits, and stand the test of competition, when put on the market, side by side, with the product of other dairymen. And, finally, whether he is entering upon a, to him, new business, which is expected to return a handsome profit whether carefully attended to in all its details or not. The careless and negligent dairyman had better sell his cows and embark in some other business. The man who adopts it as a make-shift had better keep out of it to begin with. A genuine love for the business, and a natural ambition to excel in conducting it are the necessary qualifications of a successful dairyman.

Nor shall I urge as an inducement for the further development of the industry, the probability that high prices for the product will prevail, and large profits be realized. On the contrary, it is likely that dairymen, generally, are expecting a lower average of prices in the future.

Besides, I am not at all certain, just yet, "How much money a man can make." Nor do I forget the frequently quoted truth (undoubtedly) that "ill fares the land, to hastening ills a prey, when wealth accummulates and men decay." A certain amount of money it is convenient to have; a certain amount of gold, or silver, or greenbacks (I have considerable respect for all of them), it is *necessary* to have, if one expects to enjoy the amount of worldly comfort and luxury any man may reasonably and laudably aspire to.

But the strongest inducement, undoubtedly, for giving further attention to the development of the industry exists in the fact that it is a *a certain and reliable source of income from the farm.* It will be conceded that this has been demonstrated by past experience.

So it is not the question whether the average price of butter and cheese will be higher or lower in the next ten years than it has been in the last ten; but whether the average price, whatever it may be, will not insure a more reliable income from any farm adapted to the business than any other branch of farming.

There is no use in talking to this community about raising grain for a living. We have been through with the whole programme several times, from beginning to end. We know what it is to raise 35 and even 40 bushels of wheat to the acre, and we know all we *wish* to know about raising 1 bushel of wheat to 35 or 40 acres. We have too often seen the profits of a good crop swept away by a succession of poor ones, until money was gone, credit gone, the farm impoverished, and bankruptcy stared us in the face. We tried raising coarse grain, for sale, only to a very limited extent, as we soon discovered that it frequently took two bushels to get the third to some points, hundreds or thousands of miles away, to feed cattle, hogs and sheep, that might, with profit, have been grown and cared for here.

Gradually attention was turned, little by little at first, to dairying. It has been found a source of *certain*, if not large revenue. The patronage is good, and is yearly growing better. Since wheat growing went out, and stock farming came in, farms have been constantly improving in condition, and are generally in a high state of culture. The experience here is not unlike that of other localities, and still other communities will profit by the experience of those who have thus gone before in changing their industry.

There are not wanting other inducements for the further development of the industry, such as are in the interest of comfort and convenience on the farm, and economy in producing and disposing of the product. The work on a dairy farm is quite evenly distributed throughout the year, or the greater part of it. There is no particular season of unusual hurry, necessitating a large amount of extra help, to tax severely the strength of wife and daughter in providing for them. The work, in doors and out, may be thoroughly systematized and, with modern conveniences, may be immeasurably lightened from what it used to be in the dairy room.

The so-called Hardin, or the Cooley system of setting milk, or some modification of them, is undoubtedly practicable and, sooner or later, is sure to be adopted on every farm where butter is manufactured.

There is a profitable field for labor in developing the industry in another direction.

Owing to neglect in the care and treatment of cows, want of convenience for setting the milk, and making and storing the product, a large portion of the butter manufactured by the general farmer is not put on the market in a condition to realize the price of a first class article. The loss on this account is very large in the aggregate. Butter, especially, is never any better than when first manufactured, and how far cold storage may be economically used to prevent deterioration until needed for consumption, is a question inviting attention. The same may be said with reference to handling the midsummer cheese.

The effort of the dairyman to win success will not be complete without studying to adopt the best method of putting his goods on the market; and how far organization for the purpose may be of advantage to him, he will do well to inquire.

A great *advantage* Wisconsin and all Western dairymen have over those at the East must not pass unnoticed. We can raise the feed for the cows much easier and cheaper than they can, and it is an item that makes all the difference in the world with the profits, now that it costs but a trifle more to send a pound of butter or cheese from Wisconsin to Boston than it does to send it from the interior of the state of New York to the same point. The outlay for feed on the celebrated Ogden farm, of which you have all heard so many times, swept away every dollar of profit, although the butter produced was sold at a dollar a pound.

I cannot, in closing, do better, perhaps, than to refer to what Col. Waring says of the dairymen of Holland, in his readable book, "A Farmer's Vacation Abroad." He speaks of the wonderful neatness and comfort, and even elegance of the stables and barns, and of the almost loving kindness with which the animals are treated by those who care for them. He says, in substance (I quote from memory), that, as a community, they are very wealthy, and highly refined and intelligent, beyond almost any other class of people in the country. That they take a leading part in all the political movements of the day, and are conversant with advanced thoughts on all topics which interest an intelligent people.

W. D. Hoard — I was assigned that subject, with Brother Wilkinson, but have not done my duty; but it is not a state prison offense to turn states evidence; he has said something in justification of himself, and I have the same privilege.

Be he farmer, be he editor; Is the business stable, will it pay, will it last, and are there any inducements for further developments? Is it a money making business?

The future we want to seriously scan; the rates of increase have been very rapid in the last few years. I was secretary of this association for three years, when our cheese product was not more than seven or eight million pounds; now I estimate it at twenty-four million pounds.

I get at this from the ratio of increase of the box manufactories. Has there been the same ratio of increase in other kinds of farming?

One great trouble is, our farmers can not put their finger down and tell what a thing costs. When I took the census a few years ago, I only found two farmers, out of 11,000 inhabitants, who kept books.

The milk producer will tell you that he will sell you milk for so much, yet he cannot tell how much it costs, but we are certain that the profit is much larger than in raising wheat.

One man told me that he had made cheese at six cents per pound, and made money by it, and should continue in the dairy business until it touched that figure again.

Will you just look to the history of butter and cheese, and see the cost, and the price it has sold for. It has not suffered the ups and downs, in the market, that many other products have; it is a stable product, good for nine months in a year. You can sell it in the spring, summer, autumn, and winter.

While in New York, last summer, I talked with many of the leading dairymen there, and many of them admitted that they could not stand up against Wisconsin dairymen, with land at $100 per acre.

One man thought the difference could be overcome by difference in freight, but pallor overspread his countenance when I told him that we shipped, in refrigerator cars to New York City for 38 cents, while they shipped in common box cars and paid 40 cents. The difference alone of freighting wheat and cheese to market leaves a good profit on the line of cheese.

I wish to call your attention to the town of Cold Spring in this county, which was considered the poorest town in the county. To-day it is the richest town to the square acre, and it all comes from the dairymen.

## CHEESE MAKING AND OVER-PRODUCTION.

By Hon. H. F. DOUSMAN, Waterville.

It is a maxim which commends itself to every man's experience, that the things which seldomest happen to us in this world are the things we hope for and the things we fear, and the course of the cheese market for the last six years helps to confirm this maxim.

The cry has been, ever since the factory system began to obtain any considerable development, you will make more cheese than the market will take; you will break down the price by over-production; but the make has gone on, steadily increasing from year to year, home consumption and the foreign demand have kept pace with the make, and prices have been almost uniform. But, in confirmation and support of these figures of speech, let me call your attention to a few figures of arithmetic.

The exports of cheese in 1872 were 66,000,000 lbs.; in 1873, 80,000,000 lbs.; in 1874, 90,000,0000 lbs.; in 1875, 101,000,000 lbs.; in 1876, 97,000,000 lbs.; and in 1877, 107,000,000 lbs.

This reported export of 107,000,000, for 1877, being the amount exported via New York city, does not quite tell the whole story, as a considerable amount goes out via Philadelphia and Boston.

The export then shows an increase of 40,000,000 lbs. in six years, or an average annual increase of about ten per cent.

Let us see then how the price has stood up under this increased production, and, in determining this, I have taken the figures from my own books, as being both accessible and reliable. In 1872, my cheese averaged 12 cents; in 1873, 11.89 cents; in 1874, 13 cents; in 1875, 10.86 cents; in 1876, 10.61 cents; and in 1877, 11 cents; or reduced to gold values, in 1872, 10.60; in 1873, 10.50; in 1874, 11.50; in 1875, 9.50; in 1876, 9.55; and in 1877, 10.70; or stated in general terms, the price of cheese in gold, in 1877, was a trifle higher than in 1872, and during the six years, under consideration, it has never varied more than ten per cent. from the average of these two years, viz., 10.65. It must be borne in mind besides, that during these six years the world has gone from universal good times to universal hard times; from universal business prosperity to universal business stagnation and depression.

What staple article, of either natural production or manufacture, can show a value at once so stable and so remunerative. Of course, there must be some reasons for this; I take it there are two.

In the first place, we have so improved the quality of our cheese that practically *all* of it is fit to be eaten.

In the next place we can take the cheese from our American factories and lay it down in the markets of Great Britain at an average cost of a cent and a quarter a pound, or from 10 to 12 per cent. of its value at home.

By so doing, and at this slight cost, we bring our lands, worth on an average fifty (50) dollars an acre, into competition with the lands of England, worth on an average three hundred (300) dollars an acre, and this competition is more than the English farmers can bear, so that, as I understand it, we are gradually forcing them out of cheese making into more profitable avocations, and filling this vacuum with our own products.

The fact is, the farmer of England can better compete with the farmer of Minnesota in raising *wheat* for the British market than he can with the dairymen of Wisconsin in making *cheese* for the British market. These, I take it, are the strong points in the situation. Now for the weak ones.

In the first place, Great Britain is the only country to which we export cheese; of the 107,000,000 lbs. shipped from New York, last year, she took 106,000,000 lbs.

At the same time she took from us 150,000,000 lbs. of bacon, or a pound and a half of bacon for every pound of cheese. During the same time, France took 26,000,000 lbs.; Holland and Belgium, 23,000,000 lbs.; Germany, 20,000,000 lbs. of bacon, or in round numbers, 70,000,000 lbs. in all.

During the same time France and Holland and Belgium took from us *not a pound* of cheese, and Germany only 27,000 lbs., whereas, had we fed them cheese in the same proportion to their bacon that we did England, they would have taken from us 45,000,000 lbs. of it. It would seem as if here was a field worth the attention of our exporters.

In the next place, our home consumption is not what it should be. I find that, during the last year, the sixty patrons of my factory have used 4,000 ℔s. of cheese, or on an average of 67 ℔s. to a family.

Had the 4,000 families of Waukesha county used cheese in the same proportion, they would have consumed 268,000 ℔s., or about 45 per cent. of the whole amount made in the county, which I estimate at 600,000 ℔s.; whereas, I doubt if more than 5 per cent., or 30,000 ℔s. was actually consumed.

Carry this throughout the state, and there isn't half cheese enough made to supply its own wants.

These calculations show us that here, as in the world of morals, "the heathen are at home," and the very largest field for missionary effort lies within sight of our own doorstep.

How to get at them is the question, and it's easily asked, but hard to answer.

I know of but two things we can do—give them good cheese, and give it to them as cheaply as possible.

I would have every factory keep cheese always cut for its patrons, and whoever else might want to buy. I would have it cut only good cheese, and deal it out at some fixed, regular price, not too high. I would have it make some cheese in family size, say in 12 inch hoops, weighing about 25 ℔s., for many will take such who will not take a larger one; finally, I would have it serve only prime cheese, and such as will be readily eaten, to the retail groceries which it supplies.

Each factory managed in this way will be a center of influence, which by and by will leaven the whole lump.

What then is the conclusion of the whole matter?

First, that the foreign markets will so expand and grow that, while there may be slight and temporary fluctuations, good cheese will always bring a fair price.

Second, that if home consumption can be worked up to a fair heighth, we can not begin to supply the cheese that will be wanted, and prices must advance.

Stephen Faville — I could not resist coming here, though my health was such that I ought to have staid at home — was like an old war horse, could not stay away. I have been a dairyman all my life, and ever since I was ten years of age, I have heard fears expressed that there would be an overproduction of butter and cheese, the markets would be glutted, and there would be no sale. Now the truth is we have about so many cows, and the putting up of a dozen cheese factories, more or less, would not make a single cow more, and we could not double our crops of butter and cheese in ten years, if we should want to, and besides the eaters increase as fast as the cows. Make good butter and cheese and there will be no trouble about selling it.

## CHEESE MAKING AND OVER PRODUCTION.

### BY B. S. HOXIE, COOKSVILLE.

The topic assigned to me at this time is one of much importance to us as manufacturers and dairymen. In fact the subject of *demand* and *supply* is the foundation on which rests the whole structure of the commerce of nations, and in all transactions of whatever kind or commodity a true relation of one to the other must exist, in order to hold the equilibrium.

Science and the enventive genius of man is every day unfolding and fringing out something new and useful for which before, no demand existed, but for its usefulness and adaptability to the need of art or manufacture, and the wants of man, a new market is at once created.

Many such new products or compounds have been brought out during the past few years, pushing their way to a market, until we have asked ourself the question, "How did we get along without it, and what will be the next new and useful thing under the sun?"

Natural causes beyond our control sometimes result in the production of an over-abundance. This is true in relation to many or most of all agricultural products. But this same nature soon restores the equilibrium by a lack in other localities or a general lack the next year. And here again science and the skill of man have so far succeeded in preserving fruit and other articles to our wants that we have nearly outwitted nature in this respect. We can see that in every product of the soil depending upon climatic, changes with the labor and skill of man to produce, there must be a fluctuation of supply and demand; and the more perishable or the least time and expense to produce the article, the more general is the rule of this disturbance.

We are all aware of the fact that causes have existed which stimulated and increased the production of a commodity beyond any legitimate demand, until such commodity was placed upon the market at a great loss to the manufacturer.

Again there are products requiring skill and capital to produce, which are controlled by wealthy companies or combinations, who have it in their power to regulate the supply to the average demand of the market; and the price to a certain profit or percentage above the cost to produce.

In this way monopolies oppressive have been created, until legislative enactments have been sought to control the one and protect the other.

It is also true that commodities and products in portions of the world which were supposed to be the only places that could produce them have been in a great measure superseded by the same productions, but from localities where circumstances were more favorable to its production.

You and I, gentlemen, have often heard it asserted that the States of New York and Ohio were the only dairy regions where good butter and cheese could be produced in the United States, and many of us, when we settled in Wisconsin, wrote thus to our friends in the East. And so Switzerland and Geneva thought at one time that they could supply the world with watches, but our Centenial Exhibition taught them the fact that we could make a watch 50 per cent. better than theirs at 50 per cent. less cost, and New York people and the rest of the world that Wisconsin could produce just as good cheese as was ever made in old Herkimer county, and we know, at a much less expense for feed and for cows than in New York State, and consequently at a better profit to the dairymen. This then brings us more directly to the question assigned to me of over production of cheese in Wisconsin. We all remember ten or twelve years ago when the factory system was being inaugurated in this State, that this same question was put and doubts maintained by some that the business would soon cease to be remunerative, and it is not strange that with those not wel posted in the ratio of demand to supply these doubts should exist.

But a few facts only will be necessary to show such even, that their fears are groundless. The past four years, 1874–75–76 and 1877 represent the period of our largest exporation, and taking the purchasing value of gold into account, the past year has been the most remunerative to the cheese dairymen of any in the history of this branch of American industry. This fact, then, is one answer to my question. And whatever may be the result of over production in the future, I think Wisconsin need have no fears as to dairying being a profitable investment.

It has been already shown, and the fact is true to all observers, that we can produce cheese cheaper than in the Eastern States, and it was stated by Mr. Smith, I think, last winter, that we could ship cheese from Sheboygan county to New York city at less expense per pound than from Western New York to that city.

Again, another fact: The quality of our cheese has attracted and challenged the attention of our English buyers and consumers, and their agents are already taking our cheese from Chicago direct to London and Liverpool at about the same rate as from New York to Philadelphia. And our English cousins and Scottish neighbors find that their narrow farms cannot produce cheese as cheaply as they can buy it of us. Besides, as an article of food it has been demonstrated that in no way can the different elements so necessary to human life be so condensed and so easily transported and kept intact as in a pound of cheese, and it is being more and more used as an article of food. There has been, there may be, and perhaps always will be, an over supply of a poor article, and this will stimulate us to produce better until perfection is attained; and it costs no more to produce a pound of good cheese than it does a pound of poor.

When Henry Disten commenced the manufacture of saws in Philadelphia a few years ago, he determined to make the *best* saw that could be made, and the result is that Disten & Son's saws are known now in the old country and here as the *best* made in the world. The poor are driven from the market. and their place supplied by a cheaper and much better article than Sheffield ever produced.

Let our association in the future, as in the past, discourage the practice followed in other States, of making a low grade of cheese by part or whole skimming. And let Wisconsin dairymen and factory men be stimulated to produce the *best*. Let us manufacture, if possible, an American cheese with some peculiar flavor which shall create a demand like some of the fancy cheese imported to this country. If it be a sage cheese, as I see some of our New England people call for (and which is now quoted two cents higher per pound in the market). Let us make that, and if necessary let us make them in new forms or more attractive style, and if by so doing we can create a greater demand for a cheaper and more healthy article of food then we have benefited ourselves and our fellows; they reaping the blessings and we the profits.

## BUTTER AND CHEESE MAKING.

### BY COL. P. B. BAKER, NEW YORK.

There is a tendency to praise American ingenuity, for those rapid strides of progress which have given our country the foremost rank of the world in valuable inventions, richness of resources, and the gigantic scale upon which we prosecute enterprises giving promise of profit. I would not detract in the slightest measure from the full exercise of that spirit which has overcome almost insurmountable barriers in our progress, but none the less is it true that a gradual and painstaking approach to perfection in certain branches of industry is the only SURE approach. Thoroughness, a tedious mastery of all detail, a study of cause and effect are essential to a crowning success. Among the branches of industry to which I refer, it seems to me, that of the dairy takes a conspicuous place. By the ingenuity of your brain, and the deftness of your fingers, are prepared the products of your skill, and for you to challenge the world's taste, is no mean task. I speak of the world's taste as applied to one of the fine senses. Nothing, it seems to me, is more capricious than the human appetite. A chemist may compound an extract that will be a sweet smelling perfume to all men. An artist may paint a picture that will please the eyes of all beholders. A musician may produce harmony of sound that will delight every hearer, but, I need not tell you, how difficult it is to make butter that a fastidious epicure will pronounce perfection, or cheese just suited in flavor to the fickle palate of the capricious world. Though not a dairyman now, my early days were passed on a farm, and I am not sure that the hay seed is all out of my hair. Over thirty years ago, I commenced business, and, in all the period since, I have been more or less associated with the butter and cheese trade. Starting as a tradesman in a country store, I exchanged calicoes, pins and needles for butter and cheese, and, later, as a commission merchant, I have handled butter and cheese more largely, and, meanwhile, I have, at times, billed orders for the English market.

But to address such an intelligent body of men as those composing this convention, requires a knowledge not altogether acquired in those pursuits. We used to sell western butter in New York at ten cents per pound, when New York state butter would bring 14 and 15 cents. During the past few years, western butter and cheese have gained in favor, until, to-day, none commands a higher price in the eastern markets than that from some of the Illinois and Wisconsin creameries. This is owing to the intelligent, painstaking spirit of improvement manifested by western dairymen, and not least among their discoveries is the fact that *pure* salt is an essential in making good butter. I would not, however, overlook the fact that many of the most enterprising and intelligent young men of New York and New England have come west and, quite as important, they have generally returned to select the smartest and best girls for helpmeets, thus improving the original stock by transplanting, until, to-day, we find our eastern friends coming west to pick up improvements in mechanics and the arts, as well as to learn how to run a dairy farm or build a creamery. Dairymen are learning that good butter and cheese pay a profit, while that which is poor loses money. Conventions, such as this, are acquainting them of recent improvements in the mode and process of manufacture. What feed is best for the production of milk, and what breed of cows is most profitable. The dairyman of to-day does not hesitate to pay $150 for a good cow, and is eager to learn all modern improvements in butter and cheese making, and is supplied with all necessary utensils. Singular it is, however, that some do not appreciate the necessity of using pure salt. In a statement to a convention, a year ago, I said: "It is believed by many that the necessity of using the purest salt obtainable, if we would have the best butter and cheese, whether for immediate use or for its keeping qualities, has been partially overlooked. Whenever the subject is introduced, it is admitted that it is better to use none but the purest that can be obtained. No one dares to dispute it; but when it comes to practice, the butter and cheese maker says, it will not make much difference, and I shall buy the cheaper and save a dollar a bag, which is about half a cent per pound; and so he uses the second quality, which, to the casual observer, may appear to be as good. Let us look into this penny wise and pound foolish system. In the manufacture of cheese *only two and a half pounds of salt* are required to *one hundred pounds of cheese.* At half a cent per pound(the difference in price between the first and common quality of salt) *the difference in cost is* one and a quarter cents per one hundred pounds of cheese, or *one-eighth of a mill* for *one pound. In butter* three-fourths of an ounce to one ounce of salt is used to one pound of butter. *One ounce to the pound is six and a quarter pounds to the hundred*, which makes a *difference in cost of five-sixteenths of a mill for one pound.* Taking this financial view of the question, it would seem to be necessary to suggest to any well informed dairyman that he is acting on this penny wise and pound foolish system. If the question were not admitted at once, it might be proper to bring forward argument to prove the necessity. All admit that impurities in salt, whether lime or any other foreign substance, will cause the flavor of the butter to deteriorate from the moment it is put in; and the longer the time before using, the greater the injury to the butter. The same is true in regard to cheese, but, owing to the fact that only two and one-half pounds of salt are used to the hundred pounds of cheese, while six and a quarter pounds to the hundred are used in butter, the difference in injury bears about the same proportion as the cost of the salt in one to the cost of that in the other. Probably one reason why the dairyman is not conscious of the injury is, that he sends his butter to market nearly as fast as it is made. Should he pack a few tubs with each kind of salt, that is, a part in which the common salt is used, and retain them for two or three months, he could form an accurate judgment of the advantages of the pure over the common salt. No dairyman, having once tried it, would ever after use other than the purest. To ascertain which of the many kinds of salt offered to the public is best may be difficult, but, probably, taking the reports of tests at public expositions, the Centennial and others , or the tests of our most reliable chemists, is the best available means to the dairyman who is not sufficiently informed to make critical tests himself. Let the dairyman have the latest improvements in machinery, the best feed, the best breed of cows, and let him use the utmost care in the manufacture of dairy products, if he would excel, he must also use the best salt attainable."

The farmers of the northwest have inscribed on their banners "Excelsior," and the New England and New York dairymen must look well to their laurels, or English orders for fine butter and cheese will continue to be sent over their heads, by telegraph, to the enterprising dairyman of the west.

The fair held at Chicago, in December last, was, probably, the largest display of fine butter ever made in this country. Eastern buyers were so pleased with its quality that the boards were swept, and now, while common butter is both plenty and cheap, nearly all of the exhibitors sold their entire winter product, rendering it difficult to buy large lots of any first class creamery in all this section.

On motion, adjourned until 7 P. M.

*Evening Session.*

## DAIRYING AS AN ELEVATING AND INTELLECTUAL OCCUPATION.

BY J. A. SMITH, SHEBOYGAN.

One theory of man's first appearance upon the earth is, that he sprang, full-blossomed, from the creative hand, endowed with a language that enabled him to convey his thoughts to others of his race, and was otherwise furnished with developments that, analogical reasoning teaches, could only have come through long ages of earnest endeavor, and a safe storing up of much of the mental power manifested by slowly developing brain, and its transmission to the progeny of the successive representatives of the race. The theory, to be accepted, involves a robustness of faith that is proof against the assaults and conclusions of science; and its truth can now be safely doubted without subjecting the skeptic to torture, by either rack or fire, or drawing down upon him the amathemas, even of many of the advanced reformers and so called orthodox theologians of our times.

The opposite theory, that the early representatives of the race, when they had developed enough to entitle them to the prefix human (and behind that I do not wish to raise the veil for the purpose of letting in light upon the topic named for my central thought) were in an extremely rude, childish and mentally feeble condition; in short, that they had it all to learn; and, at the dawn, wrote not with the historian's pen, but made their records on the rocks, not even yet enchiseled lines denoting written language, but informations that appear to us only in the forms of majestic ruins.

Accepting this later theory, we can account for the slow development of man's achievements, and safely draw the experience that continued progress, and subsequent achievements are to be attained only by the same means. Following the chain of causation back, and seeing how its links grow smaller and weaker, and are finally lost to the researches of authentic history, we may in imagination look into the "To–Be," and infer that its links will be larger and stronger and be made of more refined and more polished steel. To make these preliminary reflections appear to be germane to my topic, it is only necessary to remember that elevation in anything presupposes a *status* from which to ascend. The train of thought they suggested, I was led into by an accidental re-reading of a page in history that arrested my attention since I gave to our secretary the text of the topic I would discuss. The reading of that page gave rise to a thought that bore distinctly upon the point, for it gave the historic origin of the great interest in which we are engaged. Initiating the very germ of the dairy buisness, cultivating it even though rudely, prepared a race to develop the intellectual progress of the world. It originated with that one of the three great branches of the human family, first founders of the region on the soil of which the brillant empire of the Medes and Persians was afterwards founded; and from whose ancient hive there first swarmed the Indo-Europeans, some to found ancient Greece, but more to pour through the passes of the Caucasus, and spread over northern Europe, meeting almost everywhere the barbarians who had preceded them, and by the force inherent in them, being the conquerors, even as their descendants were the conquerors of the barbarians who peopled America. It may be well at this point, to ask how it came to pass that this branch of the race was so much developed that it had the stored up power to thus project such a comet of mental light, into the then midnight gloom of utter barbarism, and illuminate its pathway with what was civilization and government, as compared with the institutions of the barbaric races they conquered. That page of history my eye caught, answers the query. That great Aryan family was the first to catch a glimpse of the inchoate civilization that was about to appear, the first that founded institutions that could produce the developments now so familiar to us in this age. Those institutions were first, the domestication and rearing of flocks and herds, and following this the cultivation of the soil, and the providing of the family for each man, which there and then first had its sacred character recognized. This occupation of the race promoted and enjoined peace and industry — the primal factors that compose true wealth and progress among all peoples, and in all times. Here was the very germ of the dairy business, point, remote, evanescent you may say, but yet the necessary first step, as truly as the first rude lever that ever crossed a fulcrum was the germ of the huge Corliss engine that furnished the motive power used to propel the machines at our late centennial show. There, for century upon century, this branch of the race lived, toiled and grew; coiling up, as it may be said, the mainspring that finally projected civilization into pretty nearly cimmerian darkness, and diffused a radiance over the world that has brightened into our resplendent day.

There is a degree of satisfaction in learning that dairymen, and the manufacturers of dairy products, professors of the fine arts in the agricultural world, can trace their lineage back to the original dairymen of the race, and find that modern civilization and the Aryan milk pail are allied; one the cause, and the other the result, you may say such a civilization might have been developed without such a start from a people modified by their peaceful and humanizing occupation, and it can be replied, it did not; and, further, the other great branches of the early races, not having the send-off of ours, marked out their destiny in accordance with their controlling motives, and compared results that cut but a sorry figure, in comparison with the acheivements of the brainy progeny of Japhet, the primeval fathers of gilt edged butter and cheese.

While what has been said in relation to the origin of the business is worth, perhaps, the time it has taken to refer to it as a reminiscence of the past, it is chiefly valuable as a substantiation of the truth involved in the text of my topic, that dairying is an elevating and intellectual occupation, for it came along with, and aided to develop the brain that ultimately gave us government for the protection of personal rights, gave us the printing press, the indispensible daily paper, the steam engine, the steamship, the locomotive on steel rails that span continents, and the telegraph over the mountains and under the sea. While its general condition, as we have seen, was most honorable, its successful prosecution to-day, calls into activity and development many of the finest powers of the human mind, many more, and more varied in their acquirements, than those requisite for comparatively successful forming that is chiefly confined to the production of grain, for it adds to those all the questions involved in breeding, in the care of animals, their proper food, the properties of milk, the problem of how to better manufacture, preserve, sell, transport and retail the products of the dairy. It thus makes a field for the exercise of the intellect, probably more inviting and elevating than any other in the whole verge of agricultural labor.

In making these estimates of its pre-eminence in the way of taxing, and, at the same time, stimulating the sharper faculties of the intellect, I do not wish the term "elevating" to be restricted in its signification to mental processes alone; but claim that there is moral power also inherent in the occupation, that makes those engaged in it better men than they would be likely to be if not surrounded by the objects and animals necessary for the successful prosecution of their business. First among the moral educators, he comes in contact with, humble though the teacher may be, is the cow herself. A man may have an intellect keen and cultivated enough to tell within a grain the weight of a planet, and be a devil at the heart, but he must have humanity pretty broadly developed, and the rich milk of human kindness in him, to properly care for a cow so that he can make money by keeping her. That proper care induces the erection of warm stables, an ample supply of nutritious food and pure drink, cleanliness of the animal and its surroundings, and a manifestation of kindness in all his treatment of the breathing, delicate machine, the use of which is to give him all his profits. The very conditions upon which he can expect profits at all constrain him to rise in the sphere he has chosen for his activities. Moral development of himself is right in the line of his financial interests, for he is a low-browed, low-keyed individual, who can practice the virtues on which success is predicated, and not be modified in his character by their humanizing influences.

While the mute appeal of starvation and neglect of his dumb beast will rebuke his cruelty, and retributive justice will dissipate his profits and empty his purse, the satisfied hunger of his kine, giving distending fatness, and the ever flowing pail will chase from his mind the thought that he is a thief, seeking returns where he has made no honest, intelligent investment of capital, kindness and care. Compare such a dairy farmer's surveying animate property that almost responds to his thought, that does, at least, beam its gratitude for delicately appeased appetites, stimulated in his pride of the sleekness, the comfort, and robustness of the occupants of his stalls, while the bleak winds howl, or the rains pour, with the exclusive grain producer, who farms with but little barn room, who keeps but little stock, who is selling his farm in Europe, or elsewhere, by the bag-full, whose comparative success for the year all turns on the point whether the weather and rains are right for a few days or weeks, who is filled with more apprehensions of ill, and oftener has disastrous realizations, and then tell me in which of those farmers you will be likely to find the most moral development, the most culture, the most refinement, the most music in the soul, in short, the most man? So long as it is true that man is modified by his surroundings, it cannot be otherwise than that the tendencies of the dairy business are as I allege.

If, then, this is the tendency of the business, it rolls upon the recipients of its blessings corresponding obligations to diffuse the knowledge they gain. It is characteristic of true knowledge, as well as of supposed knowledge, that it has a penchant for communicating what it regards as good news. Open discussion, attention of thought with thought, will show the fallacies of the latter, and fix the value of the former — the true knowledge. This, I take it, is one of the meanings of such a convention as we are now holding. But for these expanding convictions on various points, coupled with a desire to learn more, we should have no desire to come, and be of no use, either as speakers or listeners, after we got here.

We have plenty of work for the exercise of our powers. If you have a doubt on this point try to get your neighbor to adopt some of the improvements you have demonstrated are valuable. The loftier among us can always find that some plodding scholar, or some practical, unheralded inventor can let in upon his mind a flood of light. Webster said, in speaking of the sphere of the lawyer, "there is always room up higher." So there is in the sphere of the dairyman. The mooted points in the manufacture of butter and cheese, where difference is radical and important, have yet to be decided by the overthrow of the false and the installation of the true; and it will require some of the most practical learning of practical men, and the most practical researches of the chemist to establish the conclusive truths involved in some of the bottom facts; and then if truth is, at last, discovered so as to be beyond cavil by the honest and intelligent, it will take years of the exercise of all the power and influence of the forum and the press, and private expostulation, to get the truth popularly acknowledged and the false abandoned. To teach and commend to mankind the truths they ought to know and practice in their manipulation of delicate material things, elevates the teacher as well as the taught, even as the teacher of sobriety is elevated by the truths he commends to the victims of the flowing bowl. He was a sound philosopher, who, when told that the emancipated slave owed a great debt of gratitude to the early anti-slavery men of the nation, replied: "Yes, but the anti-slavery men owe a still greater debt of gratitude to the slave for the mighty moral and intellectual development it gave them to be freedom's brave defenders. While the heroism of but here and there a victim of chattel disposition is ever sounded through the trump of fame, that of a long line of his deliverers, some of whom laid down their lives in prisons, on the scaffold high, perished by the assassin's hand, or stepped to glory from freedom's battle-field, will be numbered among "the few, the immortal names, that were not born to die." Error has one redeeming feature, in that it develops a foe to combat it. If there were none to be converted from the error of their ways, no new and better ways to be commended, no new light irradiating the pathway of some of us, there would be no stimulus for holding this, and similar dairy conventions; and we would all stay at home and go on rusting, as I fear many of us are doing, who ought to be here to teach, and to be taught.

The very existence of this organization is proof of the truth involved in my topic,—its assembling at all is a manifestation of the swelling thought the occupation begets and develops. It is not the number of its members that entitle it to so large a share of public attention as it receives, or the power of mere numbers that entices such a congregation as this to listen to our proceedings. It is the subtile power of thought, taxed to make progress in such a thoughtful field of labor, that interests you,— a field that success in has so much to do with making homes pleasant, the board inviting, the edibles palatable, and the soul serene,— at meal time. You may have everything about your table otherwise perfect to the remotest details, but if the cream is either sour or *non est*, your coffee is a failure; if your cheese is indigestible as a bullet, and your butter is rancid, there is sand in your domestic machinery, you are flushed with mortification, and your guest pities, but yet feels decidedly "sold."

Again, in proof of the elevating and intellectual tendencies of the occupation under consideration, we have but to scan the programme for the proceedings of this convention, so auspiciously opened to-day. The wide range of subjects embraced, the well-known ability of the successful farmers, dairymen, manufacturers, dealers, editors, and scholars, who have spoken and who are to speak to you, shows the magnitude and interesting character of the interests involved, and prove that the dairy enterprise has so far elevated a corps of thinkers, workers, and writers in our state and vicinity, that their doings are watched, and their sayings greedily sought for re-production in the press, and their publications, now fostered by the state, are largely an educating instrumentality among the people, improving the products of the dairy, and rapidly augmenting production. I was not one of the pioneer band, and so I can say what I am about to say without indulging at all in self-congratulation, which is this: If ever a small body of determined and earnest workers, in their chosen field, had reason to be proud of the work of their hands, it is the men who founded and have given character to the Dairymen's Association of Wisconsin,—men, and some women too, who have developed the most humanizing branch of agricultural labor in the state, who have blazoned the purity and value of their products, and have proved by the tryer, they were entitled to the merits claimed, till the brand "Wisconsin" is an open sesame to the most exacting markets of the world, who have fearlessly competed for, and fairly won recognition, commendation and prizes in the great fairs in which the world was invited to do its best, who have turned the term "western" a word that has crept into the market reports before Wisconsin so largely exported dairy products, from being a term of reproach into one of honor; and last, not least, have instituted a method of sale, safer and more business-like than that enjoyed even by the older dairy districts of the east. Whether the occupation of dairying has elevated them, whether it has strengthened their intellectual powers to compass these results, or whether they have elevated the interest, rather than been elevated by it, I enter upon no "irrepressible conflict" to determine; but am inclined to think that the benefits have been reciprocal, and that, like the exchequer of active charity, they have been emptied and fillee by the same act.

Though we may all survey with much pride and satisfaction what has been accomplished, we need not sigh for the same reason that Alexander did,— for there are more worlds to conquer, and waiting chaplèts to adorn the brow of him who is truly able to announce to the dairy world, "Behold, I show unto you a more excellent way."

## INDUSTRIAL EDUCATION.

BY PROF. WM. F. PHELPS, WHITEWATER,

**President Whitewater Normal School.**

I am neither a dairyman nor the son of a dairyman; but my mother was a dairywoman. I once learned to milk the cows, but was always ready to compromise the job by doing any amount of work at any other respectable human employment. I was taught to churn, but was ever eager to turn my talents in any other direction than that from which the butter was to come, especially when it was a long time coming. I was my mother's first assistant in the cheese business, but had such a narrow escape from being struck by lightning one morning, while attending to the "whey" and the "curd," that I considered the circumstance a loud call to choose some other occupation! The lightning spared the assistant dairyboy, but so sadly demoralized a large English pear-tree near at hand that it ceased to bear fruit thereafter, forevermore! My mother endeavored to encourage me, nevertheless, by telling the neighbors, in my presence, that there was not one of her six girls that was half so handy about the house as the oldest of her three boys. But I never relished the compliment of being considered able to excel women in their own special sphere! You will readily perceive, however, the respect for her memory, for myself and for the truth compel me to say that in my opinion, my mother and her assistant made as good butter and cheese as are now produced by the refined and highly scientific processes of the modern dairy, with its elaborate conveniences, and its improved methods of securing equability of temperature, dryness and purity of atmosphere, and all the other conditions of success, in that which is now a special branch of industry, conducted upon a scale so stupendous as to have called into existence state, and even national organizations for the promotion of its great and important interests.

As we look back upon the primitive methods employed even within the recollection of many who are here assembled, in the leading industries of the past, and compare them with the present, we are forcibly struck with the conviction that the times have vastly changed. We discover that a scientific spirit is every where abroad; that men are no longer satisfied to learn *processes* and *methods* merely, but that they demand to know the *principles and laws* that govern, and that are superior to them. They begin to recognize that these methods and processes must change with time and place and circumstances, and that those which are good today and here may be worthless to-morrow, or in some other place, where the circumstances are different. The world is beginning to discover that principles are unchangeable and eternal; that they are the same yesterday, to-day and forever, and that it is only their *applications* that must change to suit the changing ciscumstances of human needs, the onward movement of human progress. Hence the great problem in all human work is to *determine its underlying principles and immutable laws*, and then to devise the wisest, best, most successful methods of applying them to the relief of human wants, and the promotion of human welfare and happiness.

The stage-coach, the post-boy, the carrier-pigeon and sailing vessels no longer meet the demand of commercial and social intercourse with men. The genii of steam and electricity have therefore given us our fast freight and express passenger trains, our steamships, our telegraphs and telephones, whereby the ends of the earth are literally brought together, time, space, and resistance being practically annihilated. To-day we may listen to the voice of the silver-toned orator, or to the magical music of the "queen of song," we place them on record and at the dawn of another centennial morning they may be made to join in the acclaim of another national jubilee. Had a Gray and an Edison lived in the time of Demosthenes, and in the light of our present knowledge of the molecular forces, we might now listen to the words of the world-renowned Grecian orator after a lapse of more than two thousand years. We take up our morning papers, study yesterday's market reports from London, Shanghai, or Yokohama, or read of the fall of Plevna and Kars, of the surrender of Adrianople, and of those other tremendous events that foreshadow the near collapse of a once powerful, but now decayed empire, as ordinary common-places of daily life.

Compare Franklin's crude device for printing with Hoe's marvelous power press; compare the rude farming implements employed by our fathers with the wonderful labor-saving machinery in modern agriculture; compare the spinning-wheel and the hand-looms of our mothers with the equipments of a well-appointed factory of the centennial year; compare the achievements of the toilsome, finger-plied needle, with the almost miraculous work of a first class sewing machine; compare the nearly indistinguishable miniatures of our grand-parents with the instantaneous sun-pictures produced in an ordinary photograph gallery; or, look at yonder stately forest tree, and reflect that in four or five hours you may be writing on sheets of paper fabricated from its trunk by the cunning magic of modern machinery, look in every direction and in every field of human activity and comparing the present with the near past, you will discover innumerable evidences that man's inquiring, penetrating spirit is abroad, and that the methods of human work have been completely revolutionized. You will discover that the processes employed in the various industrial pursuits, even within the recollection of many here present, are no longer tolerable. You will discover that there has been an advance along the whole line. The methods of production, of distribution, and even of *destruction* have been radically changed. Vast armies are now operated by telegraph. The implements of warfare are far more effective than formerly. The power of each man who carries a rifle or needle-gun has been multiplied more than tenfold; victories are achieved by changes of position, and campaings are as often won through skill of machinery as by heroism in fighting. In short, in whatever field of activity we survey the situation, whether in agriculture or commerce, whether in the manufactures or arts, whether in the professions or trades, whether in the forum or field, in peace or war, we shall discover that victory perches upon the banners of those who carry the most, and the *best cultivated brains!* Bullets and bayonets with *clear* heads behind them will always carry further and do better execution than when sighted by *block* heads. And so in the grander contests of peaceful life, intelligence wins and comes to the front, while ignorance and incapacity, baffled and defeated must go to the rear and be content to take back seats.

We are thus brought squarely to the consideration of the problem that for a few minutes is to engage our attention — the problem of *industrial education.* In approaching it, gentlemen, permit me to express the opinion that no topic that can come before you either here or elsewhere, can possess a deeper or more abiding interest. You belong to the great industrial class that comprises at least nineteen-twentieths of the total population of the republic. You are engaged in the most ancient, the most useful, and the most indispensable of the arts; the art of tilling the soil, of cultivating the fruits of the ground, of aiding to bring forth that which is pleasant to the sight, and good for food. It is no less for the interests of the race than for your interest that your labors should be so guided and directed as to yield the greatest possible reward. The case is not altered whether you are devoted exclusively to the special avocation of developing the products of the dairy or to the pursuits of general agriculture, as well. From the dust we sprang. From the dust we literally derive our sustenance. Even the success of the dairy must depend upon the preservation of the integrity of the soil. The cultivation of the great cereals is not the sole cause of its exhaustion. Whatever tends to deprive it of those essential elements that enter into the composition of food tends also to that ultimate sterility which has depopulated vast acres and withdrawn them from human uses. This process of exhaustion is going forward in this country at a fearful rate. We are following in the footsteps of some of the older nations. It needs no expert arithmetician to determine with reasonable certainty how long this can be continued without disastrous and even fatal consequences. Unless the process of exhaustion shall be arrested, and the restorative measures which science alone can suggest shall be faithfully and thoroughly applied, we, as well as the nations that have preceded us, will be called upon to suffer the penalty of violated law. The grand principle which should be made operative in our agricultural operations, of whatever grade cr branch, or under whatever name or specialty, and in whatever portion of the country, is that *of restoring to the soil that which by cropping or cultivation we extract from it.* This is no less necessary in dairying than in wheat raising, in horticulture than in stock raising. This principle, simple as it appears, once faithfully applied, would not only arrest deterioration, but restore exhausted soils and with that, a degree of prosperity and certainty in agricultural enterprises now scarcely known except in the virgin soils of the far northwest and other localities of limited extent not yet cursed with the blight of man's folly and neglect. This is the great fundamental truth, which, more than any other in industrial science, needs to be pressed upon the attention of the agricultural classes until it becomes thoroughly operative in all their pursuits.

The pressing need of the hour in every branch of industry is more thoughtfulness, and especially more *forethought*fulness, more intelligence and more skill. The value and the profit of labor are determined not by the amount of muscular and mechanical strength put forth, but by the degree of intelligence and skill that lie behind it. Wealth is the product only of *intelligent* labor, and its increase is determined by the amount of such intelligence applied to labor. Hence the right education of the laboring classes is the prime condition of the highest success in industrial pursuits. It requires vastly more knowledge to be a good farmer, mechanic or laborer to-day than ever before. Thinking bayonets are said to be the bravest in battle, and there is no doubt of it. We have proved the proposition on a large scale. Even so, a thinking plow or spade, or hoe, will do more effective and profitable service than ever entered into a "clod-hopper's" wildest dreams. It has been proved by experiment and observation that a man or woman who can barely read or write can earn more and save more by at least twenty-five per cent. than an illiterate. It has been established beyond all dispute that educated labor is worth from 100 to 1,000 per cent. more than uneducated labor, depending, of course, on the quality and extent of the education. An educated man, in the proper sense of the term, is a thoughtful man, a careful man. He saves material instead of wastes it. He takes care of his tools and implements instead of leaving them to decay in the sunshine and the storm. He repairs his own working utensils or provides to have it done promptly and well. His mind being active, his body is active. His mind being clear he foresees the wear and tear of machinery, and provides for them, and in a hundred unnamed ways prevents loss, increases profit and enlarges production.

Inactivity of mind, on the other hand, begets inactivity of body. The ignorant man is therefore apt to be an idle, wasteful, careless, vicious man, consuming and destroying more than he produces. Being measurably blind to his own interest, he is indifferent to that of his employer. Wanting both in forethought and ingenuity he allows his machinery to break, and when broken, he is both indisposed and incompetent to repair it. Being incompetent to enjoy the higher pleasures of reason, imagination and taste, he seeks the lower ones that come from vicious associations. And so he drudges his way through weary life without the aid of intellectual implements and tools, a mere human machine that must be operated and moved by a power from without instead of controlled and guided by a reasoning soul within. Savages never accumulate wealth, never build cities, cultivate farms, work mines, invent machinery, erect churches and school houses, or frame and execute a code of just, wise, and wholesome laws. Just in the ratio of a man's ignorance does he approach the savage. According to the degree of a man's intelligence and moral worth, does he approximate the highest type of civilization.

Industrial education should be considered from two stand points, or rather it may be said to be divisible into two parts; first, education *for* the industries, and second, education *in* the industries. For obvious reasons we can refer on the present occasion only to the first, or education *for* the industries.

This is the education demanded, absolutely required, by every child and every citizen of whatever rank, condition or sex. It should even be borne in mind that the value of any action by any rational being is dependent upon the intelligence and the moral power that lie behind and direct it. To increase the value of work therefore, we must increase the intelligence and improve the moral tone of the workman. This is the aim and purpose of true education. This is the true aim and purpose of our elementary schools, and of that common school system established and supported by the state. A true education seeks to cultivate, sharpen and refine the senses as the media of communication between the exterior world of matter and the interior world of mind. We have eyes, but too often see not; ears have we, but they are frequently dead to the harmonies of the universe; we have organs of smell and taste and touch, but by abuse they fail to fulfill their great purpose of giving us that accurate knowledge of the properties of the substances both helpful and hurtful, that everywhere surround us, that challenge our investigation, and that are needful for our guidance or warning in every walk of life. This cultivation of the senses is almost entirely ignored in our schools. It is not only of the highest importance in the arts, but it is even more indispensable in its relations to the cultivation of the higher powers of the intellect. To be able to look carefully and minutely at the myriad forms both animate and inanimate with which we come in daily contact is the very first step in the direction of all right mental training, and of that clear insight into things unseen that distinguishes man from brute, civilization from barbarism. Who needs to *see* more or farther than the farmer, the mechanic, the engineer or the sailor — laborers all? Who wants a keener scent than the dairyman, the dyer, the butcher, the butcher's customer, the chemist, and almost every body else? In these days of mixing and adulterating the necessaries as well as the luxuries of life, who does not need to see with Argus eyes, to smell with the scent of a blood-hound, to touch with the delicacy of Æolus on his harp-strings, and to taste with the daintiness of an epicure, in order to detect the presence of the "destroying angels" that lurk in our daily food, and lure us to a slow but sure destruction?

In its relations to mental training the cultivation of the senses as before suggested, is of the highest importance. The power of close and accurate observations is directly dependent upon the action of the senses, while all our knowledge of the properties, qualities and uses of the things about us is dependent primarily upon observation. If education fails to develop the observing powers, it fails to lay the foundation of a practical, useful and successful life. If it fails in the foundation, it fails altogether, and this is the main reason why so many of our schools are yielding such unsatisfactory results. We begin with words, the symbols of things, rather than with the things themselves. We attempt to load the memory with abstractions rather than fill the intellectual treasure house with ideas, images and facts that possess a real significance to the child. We seek to compel the learner to repeat the words of the book rather than train him to an intelligent expression of the thoughts previously developed. We fail, in brief, properly to lay the foundations of that education needed in all the industries of life, and then vainly attempt to repair the injury by mending and patching up the superstructure.

To be properly educated for any of the industries, every child should be trained,

1. To the healthful and accurate exercise of all his senses.

2. To the right use of his powers of perception and observation which consists in rightly translating, comparing, classifying and retaining the impression conveyed to his mind through the senses.

3. To forming true conceptions or judgments concerning the things with which he will be constantly required to deal, and ascending through his reasoning powers to those relations which connect *them* and *him* with the world in which he lives and the universe of which they and he form a part.

4. To recreating and reproducing those forms and combinations of utility and beauty that minister to his comfort, convenience and happiness. He should be taught to think clearly, carefully, and accurately; to read intelligently, thoughtfully and habitually; to speak fluently and forcibly; to write legibly and rapidly; to compute correctly and readily; to draw freely and with precision; to obey promptly and willingly, and to act wisely and nobly.

This, gentlemen, is a summary of the education for the industries and for good citizenship, now more needed than all things else in this nation and under this government *of* the people *for* the people and *by* the people. Our education is behind the necessities of the age and the country, not only in its industries, but in its administration. We need a labor reform, and a civil service reform, but more than all, we need an education reform, because that lies at the basis of all other reforms. But this education reform is beset with the gravest difficulties. Not the least of these difficulties is the indisposition, in some cases the opposition, of the people to the enforcement of the necessary measures. There is an education of public opinion that is now especially demanded, because ours is a overnment, and ours are institutions based upon and supported by this opinion. There is a necessity that it move forward to higher conceptions and nobler duties, so that the masses of the people, the great industrial class, may more fully realize the benefits of a civilization based upon the equality of all men before the law, and the right of every man to enjoy to the fullest extent the fruits of his own intelligent and well directed labors. Every common school may and should be made in a literal sense an industrial school. To accomplish this result, they must be conducted by skilled laborers, who comprehend the intimate relations between true education and the success of those great industrial pursuits upon which the prosperity and the perpetuity of the race and the nation alike depend. In your individual, and in your collective capacity as an organization for the promotion of one of the leading interests of the state, you may exert a powerful influence in behalf of that intellectual and moral development which underlies and I may say, overleaps n importance all industrial and material development.

## HOW MUCH MONEY CAN A MAN AFFORD TO MAKE?

By Hon. E. D. COE, Whitewater.

Editor Whitewater Register.

It has been announced that I would read a brief paper on the subject, "How Much Money Can a Man Afford to Make?" I find that a good deal of confusion has been induced in the minds of some who have read the above title, as to what is intended thereby, or what may be reasonably expected from its discussion. And I, myself, am obliged to confess that I do not find in the announced subject a very clear indication of the matter I had in my mind to write about. I will say, however, that I fully determined on receiving the invitation of your secretary, to avoid the example of that good and great philosopher, philanthropist and editor, Horace Greeley, of blessed memory, and not commit the error of writing upon some farm topic whereof I know nothing, and about which you know all that is known; consequently I have endeavored to touch upon some matters of every day experience and of concern to us all, and which also have a financial side and involve a proposition about which I know as much, probably, as any man in the room, viz.: "How not to make too much money."

It is a very general idea and an oft repeated statement, that the desire to be rich is the ruling passion of the American people, and that nearly the whole of our population is engaged in a wild and feverish race for wealth. I am suspicious of all general propositions; they are liable to be general exaggerations. General rules are apt to be valueless on account of the numerous exceptions which tend to neutralize their effect. Still we all know that very many people spend the energies of their younger days in heaping up wealth, which they hope, at some future time, to enjoy in full measure. But old age and decrepitude come upon them while they are yet busied with present care and looking to the future for enjoyment and comfort, and they find, when the time has come in which they were to realize all the happiness and pleasure of their lives, that the capacity for enjoyment is gone, or has but little opportunity for exercise, on account of the changing tastes and the weariness and weakness of advanced years.

We all agree that the first duty of every man, to himself and to society, is to live a pure, honorable, moral life. And if he has the grace to live religiously, so much the better, no doubt, say we all. But after the duties of life are provided for, there comes a wide range of plans, methods, and purposes from which to choose and order the manner and aims of our lives. Some men seek wealth, some scholarship, and some political fame. But, with nearly all, there is a tendency to look continuously to the future for real enjoyment. "The good time coming" seems to be the only good time which we think is attainable. And so we fill to-day with cares, toil, anxieties and worryment, and hope that on the morrow will come rest, leisure, comfort, sunshine, and happiness. The hope-faculty in man is one of his noblest attributes; and the trait which leads him to provide for the future is also an indispensable one in any true, well proportioned, manly character. But these characteristics, developed to excess, lead inevitably to unhappy results. Some philosopher has said that "all vice is virtue, either in excess or in deficiency." As, for instance, courage is a virtue; but if deficient it makes a coward, and if in excess it leads to foolhardiness; also economy is a virtue, but in excess it becomes miserliness, and if deficient it makes a spendthrift. So I claim that the man whose life is governed largely by anticipation, and whose thoughts continually run out to the future instead of taking in the privileges and opportunities of the present, is quite as apt to wreck his own happiness and the happiness of those dependent upon him, as if he were an improvident and reckless waster of his substance. I would, therefore, argue in favor of a present, every day, rational enjoyment of life. A day spent *now* in a thoroughly happy manner, is worth just as much as one spent happily forty years from now. An opportunity for legitimate pleasure and enjoyment offered *now*, if within one's reach, ought not to be refused on the plea that in the "sweet by and by" such things will be the common experience of every day and every week. A man cannot heap up his happiness like corn in a bin, for future consumption. It will not keep. If he would save it, he must seize it as he passes along.

But, lest I be misunderstood, I desire to say here that I do not wish to utter one word against a reasonable and provident care for the future. It is the duty of a man to work while he has strength, that he may have an accumulation of the fruits of industry and economy for his use when his strength is gone; and, also, it is his duty to prepare his family to be independent of his support at a time when that support is liable to be taken away. It is a source of enjoyment to any man to know that he is in circumstances which ensure him a competence in the latter years of his life. But a man cannot afford to wear out his nature with fret and worry over mere money getting; neither can he afford to follow it till it becomes a disease, as too often it does. There is no truer saying than that "money alone cannot bring happiness." Probably not a person before me would be willing to take all of Vanderbilt's wealth, knowing that it was to be the price of the love of his children, and that, after his death, they would hate each other with deadly bitterness because of the very millions he should leave them. A man may spend his life in getting a fortune, or riches may come upon him suddenly, and in either case he will find that wealth is not without thorns, and that the power which money brings is supplemented with cares and annoyances that the poor man knows not of.

It is a difficult matter to put into figures an answer to the question, "How much money can a man afford to make?" One man can afford to make more than another whose circumstances are different. But I would answer, in general terms, that a man cannot afford to sacrifice any duty, or any reasonable enjoyment, for the purpose of mere money making. By this I do not mean that a man should indulge in luxuries which he cannot afford, or should live beyond his income. I consider that the first object of laying up money is to provide for the wants of old age. As men's tastes and habits are different, so will their expenses be different, and different sums will be required for their various needs. Some years since, a famous insurance company passed by one year without declaring the usual dividend, for the reason that it "wished to change from a five per cent. to a four per cent. reserve." To most people it seemed that a "five per cent. reserve" would take more money than a "four per cent. reserve." But an explanation showed the contrary, for the reserve had to be sufficient to produce a given income at 4 per cent. interest, and, of course, had to be larger than when the same income was expected to be realized at five per cent. interest. I think any man may be regarded as having very reasonable expectations, who seeks to lay aside enough wealth for his support in old age on the basis of "a 4 per cent. reserve."

The second object in accumulating wealth, usually, is to provide for one's family. The man who started in life without any capital, and who has suffered all the privations and hindrances of poverty or semi-poverty, is naturally anxious that his children should have a better opportunity in the world than he had. So he seeks to lay up money for their benefit. But there is apt to be an overdoing of this generous and well intended work. First, a man is in danger of defeating the very object he seeks by allowing the children to become unfitted to value and care for the wealth which comes to them without an effort of their own; and, secondly, he gradually loses sight and thought of his own individual worth and importance in giving all the energies of his life to his children. This last is a thing which may be said of almost every generation since Adam. The usual history of the average business man is this — he has a happy childhood, enjoys a brief season of social pleasure and delight as he grows to manhood, marries and settles down, and then, as children gather about his fireside, he begins to gradually shape his plans and his life more for their benefit than for his own. It may seem captious and unfeeling to criticise adversely so generous a sentiment and course of conduct, but I think it is time that there was a change, and that we should be allowed to see a generation which labors more for its own improvement, and happiness, and welfare, and less for that of the one to come after. The history of the civilized world at all stages, shows the people, as a mass, toiling, denying self, and sacrificing comfort and personal happiness for the benefit of a generation which is to succeed them, and which, in its turn, comes upon the stage of action, and engages in the same process. I believe it would be better for the human race if all this should be modified in a large degree, and if the people in active life, at any one time, should seek to get for themselves, out of their existence, all the benefit, enjoyment and growth there are in it; and, after giving their children a fair opportunity to begin life should leave them to work out their own destiny and happiness. I believe that a man of 1878 is just as worthy as a man of 1908, and is just as much entitled to all the pleasure and value there is in life; and that a man of sixty should be as ready to look upon the world as a domain in which he has a personal and a pleasurable interest as the young man of twenty. The famous Irish member of Parliament, Sir Boyle Roche, who mingled good, hard sense and a capacity for blundering to a degree which has no recorded parallel, once created great merriment by demanding, "Why should we do these things for posterity? What has posterity ever done for us? Let posterity take care of itself." And, after all, there is a grain of sense in the old baronet's idea, and I think he is quite as near right as those who over-sacrifice themselves for the sake of their children. This may seem harsh teaching but I believe that the man who lives up to the doctrine here laid down, will be the better father, husband and companion for it. That household cannot fail to be a happy one where the enjoyment of each day is regarded as being as indispensable as the work and the duty of the day. The man who resolutely determines that he will have out of every twenty-four hours whatever of comfort and happiness there is available in them, will soon learn to prize at the highest value the pleasures of the fireside, the affection of his family, and the society of friends. He will remand the care and anxieties of business to the hours when he is at his daily work. A man can do all the profitable fretting and worrying of one day, in the most aggravated case, within two or three hours. He cannot enjoy good health, or religion, or be a pleasant associate, if he spreads his worryment over the whole twenty-four hours. He might as well eat all the time, or sleep all the time, or work all the time, as to worry all the time. He owes it to himself and to his family to leave care behind him, a part of the day at least; and, where no benefit is to be derived therefrom, he should never bring it home to cast a shadow over the household. And above all, he should never take it to bed with him. The worst bed-fellows a man ever ever had are care, trouble, and anxiety. They will sap the springs of life, and make old men of young ones faster than toil or hardship possibly can.

I have said nothing in this brief paper of religious duties—those are for each man to settle for himself. I have endavored to consider a phase of business, social, and private life, which I have long felt was worthy of having something said upon it. We make the trip through life but once, and the beneficent ruler of the Universe has given us the capacity and the opportunity to realize from it a great deal of rational enjoyment, if we will. Therefore, I consider that it is doing no wrong to ourselves here, nor prejudicing our chances for happiness hereafter, if we look for the beauty there is in the world rather than the deformity, and seek to experience the enjoyment of life instead of its trouble and misery.

It may be asked, perhaps reasonably, what has been said in all this about the subject which had been announced? I can only answer, that it has had, at least, some attention; and, in order, to give an appearance of consistency and unity to what I have written I will try and re-state the argument in a brief sentence: first of all, do the duty laid upon you—which includes providing for the present and future necessities of yourself and family; secondly, enjoy your life, day by day, as you live it; and, lastly, make all the money for which there may then be time and opportunity left to you.

## BUTTER MAKING IN WISCONSIN.

BY C. R. BEACH, WHITEWATER.

If the discussion of this important subject devolved upon me alone I should shrink from the task.

But I am to be followed by gentlemen of larger experience and of maturer wisdom, who will more than make good any deficiency of mine, and I can assure those gentlemen that in following me, they will find richer gleaning, than ever Ruth in the fields of Boaz. Not handfuls scattered, here, and there, but whole fields of thought, unrept and ungathered.

My business, and my habits have disqualified me for standing here — mine has been a life of physical labor, and while I may not say with that old Roman who in reply to a powerful harangue, simply answered, "all that he has said I will do," yet I can ssure you in plain English, that I can milk, and make butter, better than I can stand up before this audience, either to interest or instruct you.

I shall not presume to teach, and I can only hope to stir up your pure minds to the increasing importance of this subject of butter making; a business which already occupies an important place in our agricultural industry; and which seems destined in the near future to our outrank, and to lead all others.

The agricultural productions of every country, and every community, are marked by some peculiar characterestic; they can produce something better than others. And very often better, and more economically than anybody else. These different productions are the result of various causes; among which are soil, climate, the character of the inhabitants, the wants of other communities, with whom the people have commercial intercourse; these causes combined with others, go to determine what shall be the leading production of any particular community.

The older the country, the more fixed and marked these peculiarities become.

Cuba produces sago, Australia wool, Texas, cattle, the south, cotton, while the older northern states have long been distinguished for their *butter*, in the manufacturing of which they enjoyed almost a monoply.

But the star of empire has been moving westward, and the failure of our wheat crop, together with the runious competition of newer and cheaper lands in the production of wool, and of beef has turned the attention of our people to the making of cheese and butter.

And the rapidity with which the twin industries have developed themselves is truly surprising — it is marvelous.

The success of the cheese factory system in this state has become an establihed fact; and our productions compare favorably with those of the older states, and as to butter, though it may not have reached so high a state of uniform excellence, yet the quality is rapidly improving, while in the increase on the amount produced it has far outstripped that of cheese.

I make this statement based upon the statistical returns of the comparative amounts of their two products received in Chicago in the year of 1875 and those of 1877. In 1875 there was received in that city in round numbers 21,000,000 pounds of butter to 12,000,000 pounds of cheese. In 1877, 42,000,000 pounds of butter to 20,000,000 pounds of cheese, being an increase of 100 per cent. in the amount of butter to an increase of 60 per cent. in the amount of cheese.

I suppose our own state is entitled to her equal share of this increased production.

In the year 1866, there was sent abroad from this community of which Whitewater is the center, less than 7,000 pounds of butter. In the year of 1877, the amount will not fall much below 300,000, and this too in a community where cheese factories are as thick as school houses, and where there are no butter factories and but few large dairies that manufacture butter exclusively. If to these 300,000 pounds sent abroad, you add the butter consumed by our own people, the commercial value of this aggregate will nearly equal the combined production of all our cheese factories.

What then must be the combined amount of the butter production of our whole state, if with no systematic development such results have been attained? Can any one estimate or measure the limit of our future production? Can any one doubt that Wisconsin is to be a great butter producing state?

Situated as we are in the north half of the great grass belt of the continent, with our cool and health giving climate; our diversified surface, our sheltering belts of timber, our cheap lumber and stone for building, our numerous ponds and lakes for the production of ice, our countless streams of clear, crystalline, running water, our flouring mills, our springs, and our windmills affording everywhere the finest water for our dairies.

Our rich grasses, which flourish everywhere, with a soil peculiarly adapted to the production of clover, of corn, of oats, of barley, and of rye, the cheapness of the refuse of our flouring mills, our railroads, and water communications, for reaching the markets of the world; the cheapness of our dairy lands; and the cheapness of our dairy cows, when compared with those of older states, all these and more, which time will not allow me to mention, point to our state as the very *paradise* of butter makers.

But not only are we invited to this buisness by our surroundings, we are driven to it by our necessities; well, it is a very good business any way — and pardon me, when I say that it takes a pretty good man to be a good butter maker. He can't drive fast horses. He can't hang around saloons. He can't smoke; if he does, the butter will taste.

And the habits acquired in the care of the cows, and in attending to all the details of butter making, go to develop those qualities which make the good citizen.

Some object to butter making because it is so confining, while if more of us were forced into something which would compel us to mind our business, it would be the better for us. In all business there are disappointments, but the certainty with which the butter maker can estimate the amount of his future production, and the probable income he may receive renders it extremely inviting. And I have never known a single instance in which the people of a community, or an individual who was once established in the business left it for some other branch of farming, because it paid better. But if we all go to making butter, can we sell it? I am no prophet or prophet's son, and therefore can not forecast the future — but thus far, with all the depression in business, and with all our increased production, we have found a ready market, at increased prices, when those prices are estimated by their purchasing power. There is another view of this market question: There can be no large accumulation held for a long time which shall come in competition with good fresh-made butter. Hogs may increase, and pork accumulate. Sheep may multiply, and wool piled up year after year, and the corn and the wheat may be stored in your granaries until they are full to bursting, and not deteriorate.

But when the spring comes and the grass grows, the market is as free from all competition for your fresh-made butter, as though there had never been a pound made.

Everybody eats butter, and pinching must be the poverty that will not allow a man to have it upon his table. We are a nation of butter-eaters, and we are eating it, more and more.

We used to have for our breakfast pork and potatoes, with pork-gravy upon our bread. We must now have beefsteak and buttered toast.

The foreign demand, which during our civil war had almost entirely ceased, has of late increased with wonderful rapidity. And the improved methods of handling butter on board steam vessels seems likely to increase the demand in a tenfold ratio. As to our eastern home market, we can put down butter in New York or Boston to-day at a price not to exceed one-half cent a pound above the dairies of central New York.

The south and southwest are taking large and increasing quantities of our butter.

There is not a market in the world open to the sale of American butter, in which we may not successfully compete with the older butter producing states with great odds in our favor, with only this condition: That we make it as good, and that we make it cheaper.

And the real practical question for us as butter-makers is: 'How shall we produce an article of the highest excellence with the greatest economy? The reason why so much poor butter finds its way into the markets is not to be attributed so much to ignorance or want of skill, as to the neglect on the part of the makers. From the feeding of the cows, to the last working of the butter, they do everything else before it is attended to. All this must be changed. We must make butter-making a specialty. All business upon the farm must be made subservient to it.

The factory system which has affected such a revolution in cheese-making presents its claims to the butter-maker, and to those who have but few cows, and fewer consumers, for handling milk, it offers peculiar advantages. But it is an open question whether from a given amount of milk moved from a long distance and furnished by a large number of patrons, under dissimilar surrounding, and with different methods of feeding, as good results can ever be shown, either in the quantity or quality of the butter produced, as the same amount of milk from a private dairy. The private dairy would seem to have the advantage for the successful handling of milk in the winter. These two reasons combined would in my mind give the preference to the private dairy.

And in my remarks, I speak more particularly to private dairymen. This subject of winter-making butter deserves more of attention. By making butter while the eastern dairies are idle, we partly solve this question of market, and the high prices of butter during the winter months enables us to produce it with greater profit. I used to think that the cow was indispensable in the making of butter, but modern science has learned to do without her. But should we conclude to use the cow, how should we choose her? From what breed shall we select? Shall we choose a Jersey or a Holstein, a Durham or a common cow? Has any one of them so established their superiority as to make their use necessary in the production of butter of the highest excellence, with the greatest economy? I shall not attempt to argue this question, but will simply state my own side, never to choose a cow on account of her breeding, nor reject her because of it.

The improved breeds have, no doubt, many excellencies of which we are pretty sure to learn from those who have them to sell. But, as yet, they are exotics among us. They are not yet thoroughly acclimated. They have not been placed under unfavorable circumstances to try them. And a good many of us ar'nt fit to have them. About the barns of too many of us they would be as much out of place as one of Phelps' highly finished and highly adorned school marms in the home of a Comanche Indian. I do not exaggerate, I speak the words of truth and soberness.

I am but a common dairyman, you will, therefore, bear with me while I speak a word for the common cow of our country. By common cow, I mean one so far removed in blood from any of the improved races as not to be classed as among their grades. She is thoroughly acclimated. She can endure the extreme cold of our winters, and the burning heat of our summers. She is hardy. She has lived through all our abuse and all our neglect, and still she is a pretty good cow.

That crumpled-horned, rough-haired, old cow behind the straw stack yonder, with her back to the northwest wind; if you will take her and give her the place of honor in your stable; if you will treat her, in all respects, as though you had paid a thousand dollars for her and thought her cheap, my word for it, if she does not prove to you that she is thorough bred, she will, at least, show that she is *high grade.*

But how about the quality and the quantity of the butter? As to quantity, I think, records will show as large yields under the same circumstances from the common cow as from any of the improved breeds. As to the quality, I know that Col. Waring, of the Ogden farm papers, has claimed that butter of the highest excellence (such as he makes) can only be produced from Jersey cows, and deep settings. Col. Waring, with all his good qualities, which are many, has a little of the Mrs. Grundy about him.

Let me illustrate. In a neighboring city there lived a man so favored by fortune, that he thought it due to his social position to furnish his table with Jersey butter. And, having found his man, he was satisfied; he was more than satisfied; he was constantly praising his Jersey butter. But the supply of the market run short, and, not wishing to lose his customer, he bought a tub of a well known dairyman, who milked common cows (but, by the way, was a high feeder), remarking, "I know that Mr. B. will detect this at once, and that he will not like it." But he carried the tub, and said nothing. The next time he saw his customer, he was still loud in his praise of his Jersey butter, and said he, "that last tub you sent me was the best butter I ever saw."

I have, when in Chicago, made careful inquiry of men who received and handled butter represented to be Jersey, sent from at least three well known owners of Jersey cows, and in no case have I found that the price received was greater than that paid for butter from common cows. And I am fully convinced that a select lot of common cows will compare favorably with a like number from any of the improved breeds, both as to quality and quantity. When we have developed all there is in the common cow, we may look higher.

Do you ask how I would choose a cow? As I would choose a wife. If her looks pleased me I would get her if I could; and in both cases, it would be about an even chance of being taken in. The cow is the saint of the barnyard. More, she is the patron saint; and if you would succeed, her aid must be invoked, and she should receive all that considerate attention which is bestowed upon saints of a higher order. All her wants should be anticipated. She should be carefully handled, watered and sheltered, and during the summer, should her pasture be poor or scant, she should receive extra feed. And here let me say, that in, and around, and about this word "feed" clusters the most important elements of butter making.

When Demosthenes was asked what was the first requisite in an orator, answered, action. And the second? Action. And the third? He still answered, action. And so, were I asked what is the chief requisite in making butter of the highest excellence with the greatest economy, I would answer, high feeding; and the second, I would say, high feeding; and the third, I would answer, high feeding. It is the Alpha and the Omega, the beginning and the ending, the chief foundation upon which all success in butter making must rest. Overlooking this one idea, with the best cows, be they Jersey, or be they Holstien, with the most scientifically constructed milk room, and with the best appliances, you will make a most miserable failure. And why? Because you cannot draw water out of a dry well; you cannot get something out of nothing. The butter, both the quality and the quantity, is in the feed. The cow is but the machine for extracting it. The goose that clearly laid the golden egg must have been fed, at least, on gold-bearing quartz.

Do you ask, how and what the cow should be fed? That will be the subject of another discussion, and my old gray-haired friend Boyce will tell you more in one half hour than I ever thought of knowing in my life. I will simply say, that the cow should first be fed those substances which contain the elements of her growth, and which will supply her natural decay and wants, and then enough more of those substances that contain the elements of butter to enable her to supply what butter your customers will take or your pecuniary wants require. Not carelessly and wastefully; not as the man who drew a full load of potatoes and threw them to two hogs, because he wanted to fatten them, but regularly, carefully, systematically, economically.

I need not stand here and tell you that in order to make good butter that the milking should be done regularly, and the milk kept at uniform temperature, and that everything should be kept clean, and the milk skimmed at the right time, and that the churning be done so and so, and the butter carefully worked. There is not a woman here but what knows how to make butter better than I can tell her. And more, her husband knows that she knows. There is only one time when a man has the least shadow of a doubt of his wife's ability to make the best of butter, and that is when he has failed to get as much for his butter as some one else; and then, perhaps he has come home and blamed his wife. Well, what ailed the butter? Oh, the man said that it was white and salvy, and that it was over-worked. Well, what if it was? So was the woman, and the fault in both cases was with yourself. That milk which you brought her lacked all the elements of good butter, and the butter that it did produce was so weak and sickly that it could not stand even careful handling. And she, seeing that it lacked something, she has worked it and turned it, she has patterned it and prepared it, trying to make good butter out of it, and she has failed. Had your cows been well fed, that milk would have contained the elements of good butter, and it would have come from the churn with that solid, crystalline, almost metalic, grain that would have defied her weak power to destroy it. It might be impaired, but like fallen man, it would show indications of its origin. But she would not have spoiled it. Her quick sense of what was good and beautiful would have shown her when to have stopped working it.

If any of you have an inward consciousness that you have thus cast blame upon your wife, when you yourself was to blame, go home, confess your fault, and pray for faith that you may keep your cows better, and then show your faith by your works.

And here let me say, if any of you are turning your thoughts towards butter-making as a business, have planned that your wife do the skimming of the milk, the churning and the working and the packing of the butter, you had better relinquish your plans, and turn your thoughts to something else. On the other hand, let no man hope to succeed in butter making without the hearty and cordial co-operation of his wife. A house divided against itself cannot stand. And if satan, with all his wisdom and experience, cannot sustain himself with a divided interest, how can a poor dairyman hope to succeed under like circumstances?

Of the various new and improved methods of handling milk in the production of butter, I shall say but little, for I know but little. I have thus far followed only the good old way of my father. I am here as a learner. There is a wide undeveloped field in the improvement of the appliances in butter making. While their adoption may not be a necessity in the production of good butter, their use in many cases will tend to lighten labor and make the business more attractive. Let us therefore examine these improvements in the spirit of candor and liberality; not abandoning old and approved methods for those which are new, simply because they are new, but rather follow the apostolic injunction, "Prove all things, hold fast to that which is good," remembering that success in this, as in every other business, can be reached only through the paths of persistent, intelligent labor.

Brother butter-makers, I trust we shall go from this gathering and from this place with a higher and a juster appreciation of the dignity of our calling. Let us show a commendable pride in our profession. Let each of us and all of us, individually and collectively, do what we can to elevate the standard of butter making. To hasten the time when every package of butter which shall go from our highly favored state shall be not only gilt-edged but solid, golden from center to circumference, from the bottom to the top. When the word Wisconsin, applied to butter, shall be but another name for all that is excellent.

## BUTTER MAKING IN WISCONSIN.

BY ASA FOSTER, ELKHORN.

President Walworth County Agricultural Society.

My experience in butter making is, there are none but wish good butter, and all agree that a good article is a necessity to supply the wants of the people. Can this quality of butter be made in the west? The trial of the last few years has settled this question fully, that it can; now, as we have the inside track, we ought to maintain our reputation abroad by putting forth our best efforts here in the west. Only a few years ago, our butter was known in the eastern markets as western grease, to-day the butter of our best western creameries is outselling the best eastern made butter in their own markets. The eastern markets now are asking for good western butter, and they get it; one reason for this is the superior quality of our feed, which is the first essential thing in making a good article of butter.

Now, what next? First, use good judgment in saving this feed, and in feeding it. Second, warm, dry, well ventilated stables. Kindly, well cared for cows, that are not governed by the dog or milking stool, but by kind, gentle treatment from calves until they become cows, and all the time. The dumb beast appreciates kindness. Never let them want for good feed, never let them get poor, always have a good shelter, keep them constantly growing from calves, as, in my judgment, they make far better milkers than those that are poorly cared for when young. Now we have the feed, the stable, and the cow, it is self-evident that with the proper conveniences for setting the milk, we have the foundation for good butter.

Our mode of setting milk. We use the tin pails 20 inches high, 8 inches across, set in water; change the water as often as needed to keep the temperature as near 60° as possible, skim at 36 hours, set the cream in the same kind of pails used for the milk, on the milk room, cellar floor, which is made of grout (our milk room is stone), skim morning and evening, churn the next morning, skim pretty well down, taking in some of the sour milk, as we think it adds to the firmness of the butter. We use a No. 7 Blanchard churn. Churn with a horse, a small sweep, time of churning, about ¾ hour, when the butter comes in lumps about the size of kernels of wheat, draw off the butter-milk; while the butter-milk is running, keep pouring on cold water, with a dipper, until the water runs off clear, handle the butter with care, as at the churn is where, I think, much that would otherwise be our best butter is spoiled by rough handling, before and at the time of salting; use one ounce of salt to each pound of butter, set the butter away 24 hours, then work with "Snow's" butter worker until the grain is right, to suit your fancy and taste, then pack in oak or ash tubs, well soaked in brine before using, cut bleached cloth the size of the tub, cover well with salt; set in cellar a few days, and ship to regular houses. We find no difficulty in getting 26 to 35 cents net per pound. We feed sour milk to hogs, and to calves after they have been well started on new milk. Calves do better this way than those that run with the cows We raise about 30 calves to 40 cows, and feed about 30 to 40 hogs on sour milk, running in pasture with a little grain makes early pork, which usually brings a better price than later; generally, sell the steers and such heifers as, we think, will not make good milkers, when two years old, keeping the best heifers to fill the place of cows sold the butcher. We feed sowed corn from July to September, then feed corn in shock, and pumpkins increasing the quantity of feed as the quantity of milk decreases; in October feed oat and corn meal and shocked corn, until we wish to dry them off, then our cows are in high flesh, then take all the grain away from them, feed one week on marsh hay, so as to thoroughly dry them off; milk them out once in two or three days, and see that they are perfectly dry; if milk is left in the udder to curdle and dry, we may look for bad teats and udder; there should be great care taken.

And I do believe, after a cow has its growth, that two years is all that it is profitable to keep her with high feed and constant milking. I think, in that time the milking qualities are exhausted, and she should be sold to the butcher. The coloring we use for our butter in the winter is yellow corn meal fed to the cow. The cow should be kept in from all storms, kept warm and well bedded.

Cattle, in general, can be so well cared for and so evenly kept, summer and winter, and all the year round, that there will be no wrinkles on their horns. These wrinkles are only marks to tell us of our neglect to the animal; it cannot always be avoided, as some cattle are tender, others get hurt or diseased, and will grow poor in spite of good care. I mean good, strong, healthy animals.

I would like to add one thing more in regard to butter making in the west. That a party in North Vermont,— my old home — has quite recently written me that he must "throw up the sponge," to Wisconsin butter makers, for Boston was paying two cents per pound more for fresh western creamery butter, than Vermont dairymen could get; and, what was worse, the exactions of local freighting made it cost more to ship butter 180 miles into Boston, than competition made it cost from Wisconsin to Boston. Probably one of the reasons for this is that corn and grain-fed cows in the west give better milk, particularly in the fall and winter, than the hay-fed cows of the east, where they think grain too costly to feed.

## BUTTER MAKING.

### BY MRS. L. E. HAWS, WHITEWATER.

Very much interested in listening to the papers read, and discussions on this topic, finding them both interesting and instructive; but one fact is noticeable, either the speakers, with one exception, who referred to the homework of farmers, the making of butter, etc., were without wives, or else considered them so wholly absorbed in themselves as to be included in the pronoun, I. If a new era is to be inaugurated, and farmers' wives are to be freed from the responsbility of butter making, etc., I would like to rise to my new privileges in the good new way, leaving the skimming of milk, etc. to my husband and sons.

In this community, when butter is to be sold, the first question asked is, Who made it? The answer invariably is, Mrs., not Mr.;

thus the farmer's wife is recognized as the maker in its sale. If the farmers of our state consider their wives as helpmeets and not servants, they surely have been unfortunate in the manner of expressing their thoughts. But is there not great need of improvement in our homes? Is not the young wife brought to the farm house and usually expected henceforth, to devote all her strength and energy to making butter, raising poultry and a thousand other cares, often doing the work of three, besides caring for her children, being up early and late, no time for rest or improvement? Is it strange that she crystalizes into a mere servant for the household, instead of being its life and inspiration? We cannot claim that the husband is wholly to blame for this state of affairs. Woman must take the initiative steps to break her chains; the men who from boyhood have been accustomed to this home life, take it is a matter of course, and must be drawn from the rut. It is an admitted fact that man is developed by contact with the outside world, comparing thoughts, reading, etc.; should not the wife have opportunities for development also? Every improvement for helping on the farm work is eagerly secured; should not every facility for making the work of the house lighter, be as eagerly secured, that the wife's strength and nervous energy be not needlessly wasted? Books and papers be provided, read and discussed; the home made enjoyable, if need be, at the expense of not quite so much scrubbing as is sometimes deemed necessary, by a strong pair of hands being provided for the heavy tasks?

The remarks regarding the care of cows interested me. There seems to be a new era dawning for cows as well as women.

At the next meeting of the Dairyman's Association, can there not be a home department where farmers wives may learn what far reaching opportunities are within their reach and how to grasp them?

Moved to adjourn until 9 A. M., Thursday.

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THURSDAY, *January* 24, 9 A. M.

Convention called to order by President DeLand.

The President stated that there was an opportunity now for those in want of cheese machines to register their names, also those wanting situations to register, that such might be known.

## REPORT OF SECRETARY,

Was read, showing the expense of his office, for the past year, including paper, stamps and printing was, $37.42.

## REPORT OF TREASURER.

**RECEIPTS.**

| | | |
|---|---|---|
| 1877. | | |
| Jan. 1. | Balance on hand | $4 00 |
| Jan. 16. | Received for membership | 78 00 |
| | Total receipts for 1877 | $82 00 |

**DISBURSEMENTS.**

| | | |
|---|---|---|
| 1877. | | |
| Jan. 16. | Prof. Daniells, traveling expenses | $9 00 |
| Jan. 16. | W. D. Hoard, printing bill | 25 50 |
| May 28. | D. W. Curtis, secretary | 33 00 |
| | Total disbursements | $67 50 |
| 1878. | | |
| Jan. 24. | Balance on hand | $14 50 |

JAMES ORVIS, *Treasurer.*

The report was, on motion, accepted.

The committee appointed to select judges on butter and cheese, made the following report through their chairman, W. D. Hoard:

*On Butter.*—H. N. Chapman, Randolph; W. F. Hovey and D. S. Ewing, Whitewater.

*On Cheese.*—H. Smith, Sheboygan Falls; J. H. Real, New York; J. H. Hart, Watertown.

## WHAT ARE THE CHARACTERISTICS OF THE BEST CHEESE, AND HOW IS IT MADE, ESPECIALLY EARLY, OR HAY CHEESE?

BY HON. HIRAM SMITH, SHEBOYGAN FALLS.

President Northwestern Dairymen's Association.

In considering the topic assigned me, it will be necessary to go somewhat into detail. If I proceed in the order as indicated in the language of the topic, and answer the first interrogatory, What are the characteristics of the best cheese? I shall not attempt to reconcile the various standards by which cheese is adjudged for different local markets, thus: In the south and west, a weak curd, open make, soft cheese, that would not keep its shape if over five or six inches high, would be called the best. But for the New York or the English markets, such cheese would be called the lowest grade, and usually sell at the lowest price, for the reason that they soon lose flavor. They are insipid when new, and (if full cream) would become strong, rank and odoriferous when old. The characteristics of the best cheese for the New York and English market, where the great bulk of Wisconsin cheese is sent, are the main questions to be considered, and happily these characteristics are now well defined, and are not a question about which intelligent judges of cheese differ, any more than would master masons differ about the character of brick to go into a building. The square, shapely, well-burned, perfect brick, go into the front and outside walls, and the slack or over burned brick go into localities where they would do the least damage. Cheese for the English market, like brick for the front wall, must be as near perfection as possible. In the first place, they must be full cream to insure quality; mild, sweet flavor, to be palatable; close texture, in order to retain flavor as long as possible; firm, without being dry; mellow, without being soft, and made chedder shape, that is about 13½ or 14½ inches in diameter, by ten inches high, and weigh fifty or sixty pounds when cured. Such cheese, if made in May, June or July, should be sold at an average of twenty days old, or go into cold storage, where the mercury stands at 40°. If kept in an ordinary curing room until September or October, they have lost their nutty flavor, and lost in price; that, no swagger of salesman can ever recover, any more than a horse that has passed into his teens can be sold for a young horse by any trick of the jockey, unless he sell to an ignoramus, and they are not over plenty among large cheese buyers. Such cheese as I have described, if made in August, September and October, can be safely held, in order to take advantage of any prospective advance in price. Perhaps you may ask, Can such perfection in cheese be uniformly secured? I answer unhesitatingly, Yes, and quote the old saying: "What man has done, man may do."

I am personally acquainted with a large number of cheese makers, that are just as certain to make good cheese of good milk as a miller is to make good flour from good wheat, or a baker to make good bread from good flour; the process is no more difficult or uncertain, neither is there any difficulty in preserving milk in good condition; if it is cooled to 60° soon after being drawn from the cow, it will be in good condition when it arrives at the factory, if the cows are healthy and properly treated, fed and watered. The soft, open, porous, bad flavored cheese, have not had sufficient heat applied to drive out the whey from the curd. The dry, hard, crumbly cheese, have been held too long, and took on too much acid; and both these cases are the result of ignorance, which, in these days, when knowledge can be so easily obtained, is absolutely without excuse.

In regard to the second interrogatory, how to make good cheese early in the spring, or hay cheese, perhaps there are more poor cheese made in the month of April than any other month in the year, and usually hay gets slandered for the result. If cows are well fed on early cut hay, and plenty of ground feed, as good cheese can be made, if properly worked, as at any other time. It won't do to lay the blame on hay. Good cheese makers know better, and a person publishes his own ignorance when he makes the assertion. The main cause of failure to make good cheese in April is, because the attempt is made to work too small an amount of milk in a large vat. If the milk is all new, and the weather cold, and the milk not more than four inches deep in the vat, my advice is, don't you try to make a cheese that day, but hold it until the next day, and put as much more milk with it, and it will not be difficult to make a good cheese. It is almost impossible, with only four inches of milk in a vat, with the usual appliances, to retain the heat, and the patience of the cheese maker, long enough to develop the requisite amount of acid. A person's patience usually gives out at sundown, and for the good of the cheese, perhaps you have not held it but half as long as necessary to secure good results. The chief and practical conclusion is, to have a small vat for early cheese. It is much better to carry the milk over one day than to carry curd over, although a fair looking cheese may be made with two kinds of curd; but it is a bad practice, and scarcely ever results in making a first class cheese, by having a few "Young America" hoops. It is but little trouble, and no loss, to press all the curd the day it is made, and thereby avoid ever making a poor cheese.

The conclusion of the whole matter is, that if the milk is good, the cheese should and can be all good; if the milk is not good, there is no use talking.

E. P. Ingalls: Would like to ask Mr. Smith if he would develop as much acid in the spring as he would later in the season.

Hiram Smith: Would develop about the same, unless he wanted to hold the cheese. My practice is to sell at once.

E. P. Ingalls: Would like to ask Mr. Smith how he told when the acid was just right, or when it had developed just enough.

Mr. Smith: Would like pure milk at all times, and then the cheap requisite for proceeding was obtained. Thought it a good plan if the weather was cold enough to do it safely, to combine the milk of two days, so that the acid would develop quicker than too much new milk. Would rather mix the milk of two days than the curd of two days' make. Believe in thorough cooking, and keeping an even heat till the acid was sufficient. Determined the amount of acid by the hot iron tests which are as reliable for telling the amount developed, as the thermometer is for telling the temperature when to apply the rennet. If there is too much acid, the cheese will bloat, leak, etc. Would advise against developing enough to more than barely stick to the iron before the whey was run off, and cold water substituted for warm, to cool the curd in the vat — know but little about curd mills or their use, and believe them unnecessary. Cooled the curd to 80° and put in hoop when the cooled curd would spin half an inch. Would not have it spin more unless it was for June cheese, that was expected to be kept during the summer.

Stephen Faville: While on this question, will you tell us if all kinds of milk require the same amount of acid?

Mr. Smith: That does not come under the head of cheese making, but how to produce good milk, which is the A B C in dairying.

President De Land: How is it that we get more leaky cheese in April than in June.

Mr. Smith: Had found that when he had too much company or was reading too much, and neglected to try the hot iron as often as he should, he set *that* batch down as leaky cheese, and he never told a lie about it either.

B. F. Hoxie: Would like to know something about floating curds, skimming milk, etc.

Mr. Smith: Had heard friend Faville say that he had had floating curds for six weeks, and he was just the man to tell us about them.

Stephen Faville: There is a great deal of bad milk taken to the factory, when the patrons are not to blame. Had seen floating curds for six weeks, when it was hard to tell where the trouble was. Was of the opinion that tainted milk needed more acid than when it was pure.

Chester Hazen: Have had some experience with floating curds.

Faville: Should say you had.

Hazen: Sometimes as a last resort, I draw the whey early, cook through, and then grind the curd. Do not claim that this will make gilt-edged cheese, but will pass in some English markets.

## DAIRY COWS AND HOW TO BREED THEM.

BY THOS. H. GLENN,

Agricultural Editor, Western Rural, Chicago.

If there is merit in brevity, what I shall say on the above topic will possess that quality, at least.

While the profits in dairying depend largely upon the quality of its products, and while it should be the ambition of dairymen of this country to make butter and cheese equal to the best product in the world, other things are equally important to the pecuniary interests of those engaged in the business. Pastures may be all that can be desired; all the facilities may be supplied to secure economy at every step, and the highest skill employed in the manufacture of butter and cheese, and yet the margin of profit may not be satisfactory. Back of all this is the necessity of having profitable cows — cows that afford a large and long continued flow of milk. If profits are secured, it is required of dairymen, as of men in all pursuits, to exercise skill and judgment in every department of the business. The investments are the same for land, buildings, etc., whether the cows are good or bad, and it is only prudent to get rid of the latter and supply their places with such as are profitable.

During the discussions at the last meeting of the Northwestern Dairymen's Association, while the subject of "The best breeds of cows for the dairy" was before the house, Mr. Israel Boise said, if we rightly understood him, that three-eighths of the cows in our

Western dairies do not pay for their keeping. Mr. Boise has been engaged in dairying for a long time, and speaks, doubtless, from experience. His estimate is based probably on a somewhat careful estimate of the amount of milk yielded by his cows during the lacteal period, and the average cost of keeping them a year.

Another dairyman of large experience, Mr. Wanzer, of Elgin, said, in a paper read before the Illinois Dairymen's Association a little more than a year ago: "Within ten miles of Elgin there are at least two hundred and fifty dairies that will average thirty cows to the dairy, and I will venture the assertion that it will average four cows to each dairy that don't pay the expense of keeping and care from one year's end to the other. Yes, and I will go further, I believe that it will average two cows to the dairy that fall so far behind paying expenses that it takes the net profit from two paying cows to foot their bills. I base these assertions upon experiments with my own dairy, which has been up to the average in point of profit. If this is true, we have one thousand cows that don't pay the expense of keeping and care, and five hundred that absorb the profits of five hundred more."

More attention has been paid to the improvement of dairy cows in the vicinity of Elgin, than elsewhere in the west, and the per centage of unprofitable stock is less there than in most localities, and this fact explains the difference in the estimates of poor stock which is noticed in the cases mentioned. But the testimony of two dairymen with an experience as extensive as the gentlemen referred to, suffices to show how much room there is for improvement, and serves to suggest inquiry as to how much labor and money are lost by dairymen in keeping unprofitable cows. It is no difficult task for a dairyman to ascertain what members of his herd yield no profit. A few figures will show what the keep of his cows costs him, and what the milk of his whole herd average him for each cow. He can approximate the amount of milk obtained from each cow during the lacteal period by a few experiments, and readily find which are profitable and which are not. It is scarcely necessary to say that when by these tests a cow falls below the standard of reasonable profit, the quicker her owner puts her into good shape for the butcher's block, and supplies her place with a paying animal, the better it is.

The inquiry next arises, How shall we improve our dairy stock?

The best way, because it is the surest, is to raise it from the best cows. The practice prevails very generally among dairymen (there are some exceptions) of slaughtering all the calves and of filling up herds as occasion requires with such cows as can be picked up. It is a practice that has prevailed for a long time at the east as well as the west, but it is a bad one. It is supposed that the cost of raising a cow is greater than that of purchasing one in the market; but if ordinary intelligence and judgment are used in raising calves, that is a mistaken idea. As a rule, the cows bought at random, or from a drove picked up by dealers, are culls of the localities where they are obtained; for a farmer or any one else is not apt to part with a good milch cow, at least, such cases are exceptional. It is an inferior class of cows that dairymen are thus compelled to select from in supplying the deficiencies in their herds. This method of replenishing the dairy with cows is short-sighted and suicidal; it should be abandoned, as should that other vicious policy, so prevalent, of indiscriminately slaughtering the calves. Experienced dairymen say that a heifer calf can be raised and kept until two years, at which time a good grade heifer may have a calf by her side, for less money than is paid for one out of a promiscuous drove of cows.

The objections made to raising calves are, that it takes too much time and costs too much. We are told that the milk required by a calf, up to the time it may be safely turned on grass, would bring more money than the calf would at that time. Now the real value of a heifer calf from a good cow does not consist merely in the price it would bring as veal; that is not a fair test. The future value of the animal for dairy purposes enters into the problem. But a calf need not have new milk from the time it is born until it is old enough to get its living on pasture. The number required to be raised is but few, and it is not difficult to make arrangements at the time of contracting milk at the butter or cheese factory, to obtain skim milk, buttermilk or whey for them, and feeding bran, or some ground feed, also, after they are a month old. Sweet whey and oat meal, warmed together, make an excellent feed for calves.

To insure the best results, it is of the first importance to breed "upward," that is, to select the best milkers and use upon them a thoroughbred male of some of the improved breeds that are celebrated for dairy purposes. The price of a bull of one of these breeds will very soon be returned in the improvement of the dairy stock. Or one may be purchased or hired by a number of dairymen in a neighborhood; and thus the cost of improving the dairy stock of the country is a mere bagatelle compared with the results secured; for it is not too much to say that a dairyman may, by thus obtaining valuable cows, and good care and feeding, very largely add to his annual income.

## DAIRY COWS, AND HOW TO BREED THEM.

### BY CHESTER HAZEN, LADOGA.

I have had no time to prepare a paper on this important subject, though I have given a great deal of time and study, in years past, to the breeding of dairy cows.

If we are to make butter, we want milk that will raise cream quickly and thoroughly; if we are to make cheese, we do not care whether the cream rises or not. The cow that gives the most milk on a given amount of food is the one for cheese.

We have been told that the native cow was the best, but I think we have no native cows in this state. If we were to go to Texas, we could find native cows, but I hardly think any of our dairymen would care to milk them.

In breeding for the dairy, I would use nothing but pure bred males, and should be measurably sure of getting good cows. If I wanted a butter dairy, I should use a Jersey; for cheese, the Holstein are highly spoken of, but should prefer the Ayrshire. I am a breeder of Ayrshires, but have none to sell.

I have bred the Jerseys for butter, and am well pleased with the result.

The Ayrshires have been bred for a century for their milking qualities, and I have yet to find the dairy cow for cheese that I prefer to the Ayrshire. I do not think it a good plan for dairymen to kill off their calves and buy to supply their place. If we want good cows we must raise our own calves, and see that they are properly cared for, and kept growing until they are cows.

I consider the Ayrshire beef superior to any other beef I have ever had.

J. M. Smith: Would like to ask Mr. Hazen if it takes a greater amount of food to produce fine beef in the Ayrshire than in the Short Horn?

Mr. Hazen: I have not tried the experiment, and cannot tell. Should like to hear from Mr. White.

W. C. White, Kenosha: Have had some experience with dairy cows, and have had some good cows that were natives. Had cows last year that averaged 40 lbs. of milk per day. I milked last season twelve 2 year old heifers, four 3 year olds, and eight grades, 6 to 8 years old, making 24 in all, and they averaged in the month of June 33 lbs. per day.

While there are a great many natives that are good cows, you are more sure in breeding from pure bred males. A half-blood will do as well for milk as a pure blood. Never had a cow that did well *unless* I did well by her. Do not think we are particular enough in selecting good cows to breed from. In summer I feed coarse middlings; in cold weather, corn meal and oats. A little oil cake is a good thing.

J. M. Smith: How much do you feed in summer?

Mr. White: Do not know; only am sure to feed enough. Would like to read an address delivered by Charles Horr, of Wellington, Ohio, and would say that I indorse *every word of it.*

## HOW CAN THE PROFITS OF DAIRY HUSBANDRY BE INCREASED?

Now I wish, in plain language, to call the attention of dairymen to a few points that they have not hitherto properly considered. The real difference in value between a good cow and a common or poor one is not generally understood, and certainly not fully appreciated.

A record should be kept by each dairyman, with his individual cows, so as to ascertain definitely the value of the produce yielded by each. This is seldom or never done. Cows are bought hap-hazard, with too little pains, and after they are bought, they are milked till they fail from old age, without regard to whether they are worthy of retention or not. I milked last year seven cows, and weighed the milk from each, enough times to ascertain with sufficient accuracy the amount of milk yielded by each. By an examination of my account, as shown on the books of Horr, Warner & Co., I find that I shall receive for the milk furnished from these seven cows, during the eight factory months, a little over $440;

and, by figuring, I see that my various cows contributed to this result, substantially as follows: best cow, $92; second best, $80; third best, $75; fourth best, $60; fifth best, $50; sixth best, $43; seventh best, $40. The two poorest ones, however, were two-year old heifers. Leaving those out, there was $42 difference between the value of the milk yielded by my best and my poorest cow, and both of them are young. The one giving the least milk looks to be worth the most money. But what is the real difference in their value? The average man, knowing all the facts that I do, would probably say $25, certainly not over $40. But I maintain that the cow that yielded $92 worth of milk is worth at least $125 more than the one that yielded but $50 worth. These cows can doubtless be milked six years longer, and during that time, should the same difference continue — and I see no reason why it should not — I should obtain from the one cow $250 worth of milk more than from the other. And one-half of this sum, it would seem, can reasonably be added to what would be the fair value of the cow, providing she was no better milker than the one with which I have compared her. If we contrast dairies instead of cows, we will find a striking, though perhaps not quite so large a difference, as when the comparison is made with individual cows. I will remark that during the past twelve years, the firm with which I have been connected has received the milk of a large number of dairies, probably three hundred on an average each year. As we have charged the milk-hauling, by the cow, we have known the number of cows kept by each patron. I have taken great pains to ascertain the yearly average, the minimum, and the maximum yield to the cow, of our various dairies. A trifle over 6,200 pounds to the cow is the maximum, and somewhat less than 2,700 the minimum. Ten years ago, the average was about 3,500 pounds to the cow. It is now just about 4,000; possibly a little over. The average value of the milk during the last five years has been about a cent a pound, so that our best dairies have produced over $20.00 worth of milk to the cow, more than the average, and fully $35.00 more than the poorest. If you make the comparison by land instead of by cows, you will find a still greater variation. I know of one dairyman who during the last year, obtained over $1,200 pounds of milk to the acre, counting every acre of his occupied land; he bought some feed, but he produced fully $10,00 worth of milk to the acre, after paying for all feed purchased.

In contrast with this, I can find within ten miles of Wellington fifty dairymen, whose whole farms are devoted to the dairy business, who did not produce over $5,00 worth of milk to the acre, during the same year. Counting the cleared land alone, I should think the average value to the acre of the annual product for the last ten years has been $6.50. To illustrate this point more fully, I will give from our books, the proceeds of the milk of two 200-acre farms, lying within one mile of each other. Both have been wholly occupied with the dairy buisness during the six years covered by my figures, and neither has any natural superiority over the other. From 1872 to 1877 inclusive, the net proceeds of their milk sent to our factory were as follows:

| | Mr. W.'s Dairy. | Mr.—'s Dairy. |
|---|---|---|
| 1872 | $2,106 58 | $1,200 73 |
| 1873 | 1,646 94 | 872 95 |
| 1874 | 1,695 17 | 776 29 |
| 1875 | 1,556 76 | 867 12 |
| 1876 | 1,510 36 | 854 16 |
| 1877 | 1,609 04 | 923 88 |
| Total | $10,124 85 | $5,494 63 |

This statement shows that the one farm during the six years is $4,630.22 ahead of the other, or $771.70 per year, or $3.31 per acre annually. The milk from both dairies during all this time went to the same cheese factory. Mr. —— has had as many years of experience as Mr. W., and is a man of more than average ability and is highly respected as a neighbor and citizen; but is in easy circumstances, and unlike most Americans, not very anxious to get rich, and hence he has not put the energy and effort into his business that his neighbor has. I would add, that I could show much larger contrasts by selecting from our books extreme cases. This great difference of the yield of milk to the cow and to the acre is mainly attributable to the following causes:

1. Difference in milking qualities of dairies.
2. Difference in the milking and the care of cows.
3. Difference in water and pasture.
4. Difference in feeding, not only in winter, but in the fall and spring months.

No farmer should buy a cow that, after careful investigation, he does not believe will bring him at least $50 worth of milk during the season. He had much better give away a cow, if he owns one, that does not give over $40 worth of milk per year than to keep her during a series of years, even if he has to pay $70 or $100 for a five year old cow that will give $70 worth of milk in a year. Poor cows are dear at any price; really good ones, if young, are never sold too high. Great pains then should be taken in the selection of cows to obtain natural milkers.

Cows should be generally messed from the time they calve until flush of feed, and for the good of the pastures as well as their own, they should not be turned out till the grass has a good start. A moderate mess should be fed as soon in July or August as the cows begin to shrink, either on account of dryness or insufficiency of pasture. As the season advances and the value of the milk increases, both the richness and the quantity of the mess should be increased. Of course, as long as the pastures are sufficiently succulent and plentiful to prevent shrinkage of milk, messing is unnecessary. But this is not generally the case after the middle or last of July, and almost never when the farmer has as many cows as it is profitable for him to keep. I recommend for July and August the feeding of bran alone, and later on a mixture of bran and middlings, or a mixture of bran and ground corn and oats.

I will remark that in figuring the problem whether it pays to mess cows or not, dairymen usually leave out several important factors, among which are the following:

1. Less pasture will be required to keep a dairy that is messed than one that is not; that is, if you could keep twenty-five cows during the fall in good flesh, relying upon your pastures alone for feed, you could surely keep thirty-two equally well, by feeding, say six or eight pounds of bran to the cow per day.

By pursuing the latter course you would get a much larger yield to the cow than if you kept a less number and gave no mess.

2. Your cows will enter the winter in much better heart and flesh, if generously messed, than if not messed at all. Indeed, dairymen have repeatedly told me in the past month, that their cows are worth $10 a head more than they would have been if they had relied upon their pastures alone during the fall. Besides, by keeping a few more cows on your farm, and regularly buying enough feed, together with what your farm produces, to give them a generous diet, you will be constantly enriching your land, and in the long run is a matter of no small importance. I maintain that

you can stable cows the year around, buy all their feed, and produce milk profitably at a dollar a hundred, provided:

1. That you keep none but first-class milkers.
2. That you buy your feed at times of the year when it can be purchased at best advantage.
3. That you select the kinds of feed judiciously.
4. That your cows are handled and milked with the utmost attainable care and skill.

God intended a cow that gives only 3,000 pounds of milk in a season, for the butcher's shambles, and not for the milking yard; and he intended the farmer who will coutinue to keep such a cow, year after year, for a milker of goats, in some benighted land, and not for a milker of cows, in this enlightened country and age.

We raise our calves by teaching them to drink new milk, then we mix half sweet whey, then mix in meal and oil cake, and take away the sweet milk.

Two years ago we raised eleven head, and in the fall were offered $20 apiece, but refused to sell at that price.

We feed our cows largely with corn, cut before there is any frost. We cut in the morning, and bind in the afternoon, and then stook it up. It should then be stacked, as it keeps better. We plant the Yankee corn, drilling one way, and four feet the other. Do not husk, but buy little corn.

When the cows commence to shrimk their milk, we commence to feed them corn, and follow it up until we dry them off. Have fed barley, and like it well in the spring.

Buckwheat bran increases the flow of milk, but decreases the cow, and the quality of the milk is poor.

Mr. ——— Will Mr. White tell us when and where we shall buy a good cow?

Mr. White — Buy one of me.

Moved to adjourn until 2 P. M.

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Convention called to order by President De Land.

The committee on nominations, through their chairman, J. A. Smith, made the following report:

*For President* — Hon. H. F. Dousman, Waterville, Waukesha county.

*For Vice Presidents* — T. C. Blanchard, Oakland, Jefferson county; Judge Geo. W. Weeden, Sheboygan Falls, Sheboygan county.

*Honorary Vice Presidents* — Chester Hazen, ex-president Wisconsin Dairymen's Association, Ladoga; S. Faville, ex-president Wisconsin Dairymen's Association, Lake Mills; Hiram Smith, ex-president Wisconsin Dairymen's Association, Sheboygan Falls.

*Secretary* — D. W. Curtis, Fort Atkinson, Jefferson county.

*Treasurer* — O. P. Clinton, Waukesha, Waukesha county.

W. D. Hoard moved that the report be received, and the chair be authorized to cast the vote of the society.

Carried.

## ADDRESS

### BY FRANCIS D. MOULTON, OF NEW YORK.

The great Northwest has compelled attention to many important questions, but to none more grave than those which affect the agricultural development of the country. The interests that you in this convention represent, while they affect you personally, are of more than individual concern, for the full knowledge requisite to the dairy interests of this section is absolutely necessary to the welfare of all.

I have recently attended the Cleveland and Meadville Dairy Conventions, and come to you with this deliberate conclusion, that conventions such as yours, are doing more towards suggestions, and knowledge for the benefit of mankind than any others I know of, because their influence is tending towards cheap food, and liberal education. The questions which you discuss are discussed beyond party lines or individual interests, and the benefaction which is the gift of your determination and conclusions, crosses the threshhold of every home. You not only plough the land, and plant the seed, and reap the harvest in the field, but you turn the furrows of the mind and soul, enriching the one with intelligence and ennobling the other with the fruits of a higher civilization. When you have given to the farmers of the land the knowledge of stock breeding and the intelligence that is involved in feeding and raising cattle;

when you have imparted the wisdom that gives flavor to the grasses, and have indicated how, with the utmost economy, the greatest results in money value may be gotten, you have furnished the means by which the menial labors and drudgery of the household may be lightened, the income from which school houses can be built, and the circumstances under which children can be better born, and without any reflection upon the fathers and mothers of the race, it is quite time that as much care be given to this question as to the breeding of short-horn cattle for milk, and race horses for the turf. When we make the plea in behalf of the dissemination of knowledge for agriculture, we make a plea for home. There is no moral quality essential to the welfare of mankind that is not consonant and mainly dependent upon this knowledge. The ploughman, after God, is the first civilizer. The first tree felled reverberated the psalm that warmed and gladdened his home, and the harvests that he has gathered since have helped to feed mankind. Before your great cities of the west were built, or your prairies peopled, the father of waters waited, and for what? Before civilization dawned here, two rivers only broke the silence that covered the metropolis of the New World, and for what? The ocean rolled listlessly, uncut by ships, and for what? To-day the whole land is ribbed with iron, and for what? In silence the messages of state to state, and empire to empire, go over the wires, because of what? Omniscience waited for the ploughman, and science and civilization have only been the executors of his will, and yet, in the light of present intelligence, how inadequate his knowledge to the results to be achieved. You represent the industry that enriches the soil and does not deplete it, the industry which, if properly developed, leads to the advancement that blesses with its benediction, first, man, and then mankind. I have traveled widely through this country, from boyhood until now, and although the enthusiasm of my manhood, for agriculture, has been stimulated by my intercourse with your people, it has been a plant of slow but steady growth. My heart has ached many a time on account of the privations that I have seen suffered in the country. I inherit a sympathy with want and ignorance from a mother who must hear me now. My first knowledge of the farmer was received through visits made with her for the alleviation of suffering through penury, and I feel if there is a heaven, and I believe there is, it smiles through her on me, for this my plea in behalf of knowledge for those who need it. It is for you who have in charge the development of the agricultural resources of the country, to say how short or how long shall be the time for the establishment of a higher civilization through the farm. To-day the country is listening with an attentive ear and an anxious heart to the discussion of financial questions. To-day the news of mercantile and banking disaster is spreading alarm throughout the land. The curse upon us is not of producers who overproduce, but of nonproducers who consume. It is for conventions such as this to furnish the information that shall draw men to the field to make agriculture more honored and profitable than Wall street gambling and mercantile failure. Only yesterday I read in a Chicago journal these words, and they inculcate the lesson you should inculcate. They are as follows, and need no emphasis of comment:

"Business failures are becoming more frequent, east and west, in Europe and America, as the season progresses. It is heart-rending to meet unfortunate men in business, burdened with the sorrows of their losses and trials, and saddening to read the news dispatches of the misfortunes of hitherto great and successful business houses. It must be — the conviction is irresistible — that there is something radically defective in the world's present financial and commercial systems, else this universal depression and ruin in business circles would ere this, have been checked. Our statesmen, our fianciers, our legislators owe it to themselves, to the country, to the commercial interests universal, to lay aside all petty prejudices, all dogmatic theories, all narrow judgments hastily formed, and look the real situation full in the face, and in the spirit of broad common sense and practical reason, endeavor to solve the momentous problem which now challenges the best genius, science and statesmanship of the age. We would seem to be in the midst of a universal, social and commercial upheaval, and it is no time for dogmatic devotion to pet theories; but it is a time for cool-headed intelligence and practical financial genius to set earnestly to work to devise practical methods for averting the dire calamity which seems to be threatening the world's commerce. It is a common peril from which no men or class of men are exempt."

The stability of the country to-day, through its agricultural resources, furnishes the only sound financial basis on which the money necessary for circulation can be founded, and it can be continued indefinitely if they are fostered through essential knowledge. Call the non-producers from Wall street and from counting rooms to the farm, and the country will not be convulsed with mercantile disasters. Fertilize the fields and the ring of silver will be as grateful as the sound of gold. Go on with your development and the nimble sixpence will outvie and outbuy the sluggish sovereign. Educate the farmer to raise two spears of grass where one grew before, and we may safely have a non-exportable currency, so that if England goes to war and all of Europe feels like fighting, and the London money market wants to buy our gold we can furnish it and not suspend payment. Let landholders, not bondholders, shape the financial policy of the country.

Fortunately the issues we are considering are not sectional. Men may have differed as to methods and systems, but intelligent men have always recognized their necessity. Virginia furnished a Jefferson devoted to agriculture; Massachusetts, a Webster, who ranked the plough above the forum. New York, a Clinton, who, guided by the suggestion of nature itself, baptized commerce with the waters of your lakes. His name will be remembered by the poor to the last generation of the living, and they will break cheap bread as a memorial of him forever. Let me state to you one practical fact; the product of his consideration of the necessities of agriculture. The canal system of the state of New York, even when cursed with a management that oppressed the west and injured the east, saved to the producers and consumers as between the sworn cost of transportation by rail and the expense of transportation by canal, when the tolls were six cents on wheat and four cents on corn, $34,000,000 per annum. The west has given the world a man, stalwart above all in our history, who dared "to front a lie in arms and not to yield." Lincoln, who gave the south freedmen for the tillers of its soil, and the warm south wind brings us their voice in gratitude for the gift:

"For him her old world moulds aside she threw,
And choosing sweet clay from the breast,
Of the unexhaused West,
With stiff untainted shaped a hero new,
Wise, steadfast in the strength of God, and true;
One whose meek flock the people joyed to be;
Not lured by any cheat of birth,
But by his clear grained human worth,
And brave old wisdom of sincerity."

Your interests are attracting a wider attention to-day than ever before, and justly. Your products exceed $600,000,000 annually, and I am glad to know that its quality at the west is as good as the best produced anywhere. It can be improved for the benefit and enrichment of all, by imparting to all the knowledge and experience given here. The improvement will be rapid unless it is foolishly concluded that your collective and individual duty is discharged and ceases when your conventions adjourn! I protested against this course at Cleveland, and I renewed it at Meadville. It was proposed at Cleveland that 500 reports should be issued concerning what Professor Stewart said of economy in agriculture; of what Baldwin said with regard to stock raising; of what Arnold said with regard to dairying, and of what Reall presented with reference to the extent and importance and necessities of your production. One of your own western men, Mr. Horr, of Wellington, Ohio, first a man, second a farmer, and last of all, a manufacturer and a merchant, read a paper that should be read of all men, and they proposed to circulate 500 copies. I said it was preposterous. And now, instead of 500 copies, over 5,000 will be published, and it ought to be 50,000. I am in favor of economy and prudence. You can become economical in a shanty, living on bread and water. I do n't like bread and water as a steady diet, and I do n't recommend it even to the poor Prudence may degenerate and may become meanness; distrust of your mission will make you timid of expenses. I want the hovel, where people are half starved, to graduate into the farm house and a well appointed home; instead of bread and water, cheese and butter and meat, good as well as cheap. I want a decent home for all to live in! And therefore I ask you to disseminate the knowledge that will give all to all. Meadville responded to the call, and I know Whitewater will echo it throughout the west. I am glad that in your expenditures and enterprise you are not so bigoted and niggardly as at the east, where rich men have outlived their usefulness, and have stood as barriers to your industry and our efforts. And I know therefore, that the plea I make will be generously responded to.

I cannot close without a tribute to the recent National Dairy Fair, held in Chicago, where cheese was exhibited that would not curse its consumers with indigestion, and butter tried that was wholesome instead of being unfit for a dog; and that fair has suggested another which will be continental and world wide in its significance. I refer to the American Dairy Fair, organized at the Cleveland convention, and indorsed at Meadville, to be held in the city of New York, next autumn. Held in the metropolis of the country, it will invite the attention of the commercial representatives of all nations to your great and growing industry, and will open up new markets that will make over production of your product impossible, if you make its quality good, and it is possible that this fair shall lead to the abolition of that inadequate bureau at Washington, which pretends to foster the agricultural resources of the country, by the gift of decayed and worthless seeds, and in its place we shall have in the cabinet of the president a minister of agriculture and commerce, whose functions, in the time to come, will be more important and benificent than the office of secretary of state or minister of war, and who may perhaps save us from the disaster of a second-class man as secretary of the treasury, since his duty will be easy when the full harvest is gathered.

We are yet as little children in this subject of agriculture, and I commend to you in its consideration the wisdom of Solomon. When God said to him, "Ask what I shall give thee?" and Solomon said, "I am but a little child, I know not how to go out or come in; give, therefore, Thy servant an understanding heart to judge Thy people, that I may discern between good and bad." And God said unto him: "Because thou hast asked this thing, and hast not asked for thyself long life, neither hast asked riches for thyself, nor hast asked the life of thine enemies, but hast asked for thyself understanding to discern judgment, behold I have done according to thy word. Lo: I have given to thee a wise and understanding heart, so that there was none like thee before thee; neither after thee shall any arise like unto thee. And I have also given thee that which thou hast not asked, both riches and honor, so that there shall not be any among the kings like unto thee all thy days."

# THE DAIRYMAN'S ADVANTAGES FOR IMPROVED FARMING.

By J. M. SMITH, Green Bay.

President Wisconsin Horticultural Society.

The necessity that exists among all branches of agriculture for improvement will probably not be disputed by any one who is sufficiently educated and interested to attend such a convention as this. Neither will it be disputed that this fact is most plainly seen and felt, not by those who need its advantages the most, but upon the contrary, by those who are already the farthest advanced in the business. I have no hesitation in venturing the assertion that neither of my friends, Hiram Smith or Chester Hazen, will claim that they have reached perfection in cheese and butter dairying, although their reputation in these respects stands so high that I should hesitate very much to say that any other man or men in this state exceed them in a practical knowledge of the business.

Neither will they claim that their farms are producing all that they are capable of doing, or that their stock has reached a point beyond which there is no improvement. Such being the case, suppose we consider for a brief space of time the advantages possessed by dairymen over the grain grower for improving his farm. In the first place he has more manure, and has it at home, subject to his own disposal, and can use it at such times and in such ways as seem to him to be for his best advantage. And here let me say before going further, that the farmer who makes the largest amount of manure per acre of his farm, will, other things being equal, be the most prosperous, and in the end the most successful farmer. I believe that this rule may be considered as certain and as sure as were the laws of the ancient Medes and Persians, that could neither be repealed nor changed. This, at the very outset, gives the dairyman a vast advantage over his neighbor who, perhaps, is growing wheat, and selling it at the nearest station, and thus impoverishing his farm year by year, until he finds that he must either make a change or be utterly ruined. But how shall the dairyman so use his large amount of manure that he may reap the greatest advantage from it? Much has been said and written upon this point, and that too by some of our best agricultural authorities. Some have urged that all barn yard manures should be spread upon grass land in the fall of the year, claiming that by so doing the greatest possible benefit is to be derived from it, and that too by the least labor. Others have as strongly argued that it should be plowed under, without regard to its quality or condition. A third class have, and as it seems to me with much more show of reason, claimed that it should be used as times, circumstances and the wants of our varied crops might seem to dictate, and that no cast iron rule can be laid down that will fit all farms and all circumstances. For the dairy farmer, who must of necessity have a large portion of his land in hay, grass and in crops for green feed, there is no doubt but that he may use a large quantity of it upon his grass land to advantage. But this may be overdone, as the following will illustrate. A friend not long since was telling me of his manuring his pasture land. He had put it on in large amounts, year after year, and the grass had grown as he had never seen it grow elsewhere. But his cattle refused to eat it until late in the season. During the spring and early summer, when it made its first growth, they would go hungry rather than feed upon it. There is a principle here that should not be lost sight of in surface manuring. If cows are compelled to feed upon grass of this rank growth, and to them disagreeable in its taste, its ill effects may reach not only to the milk, but also to the cheese and the butter.

Some years since an effort was made by the French government to utilize the products of the hundreds of miles of sewers in Paris.

They were carried off in acqueducts, and by other means to a distance of some miles from the city, and there used in their crude state for manure.

They were used in large quantities. The crops thus grown were immense; but it was very soon found that they partook largely of peculiar fertilizers with which they had been so bountifully supplied.

The result thus far has, as I understand, been nearly a failure on account of the poor quality of the crops thus grown. Where barnyard manure is thus used in large quantities it would be very likely to have this effect to a greater or less extent, provided it is used in a crude state.

There are two ways of avoiding this danger. One is to pile in heaps and let it decay before using it. While undergoing this process the noxious gases escape into the atmosphere, while the heap retains about all that is valuable for the land. Another way is to plow it under and the soil absorbs the offensive portions which are rendered harmless by the chemical process it is known to undergo in the soil; for it is well known that the earth is one of the best deodorizers in the natural world.

Perhaps some one is ready to say, "I have both pasture and meadow land that I wish to improve, but do not wish to plow them for some years to come, and of what avail is my large amount of manure, if it is to be a damage instead of a benefit to it."

Well, my friends, if you do not wish to go to the expense of so much handling, or do not wish to wait for it to become thoroughly decomposed, you may try land plaster, bone dust, or ashes, and the probabilities are that you will produce a marked improvement upon both pasture and meadow, and that very quickly. As regards surface manure, I do not imagine any evil results from its use; except where it is put on in large quantities, but I am anticipating that my dairy friends are to have it in large quantities, hence a few words of caution in this direction.

Gentlemen, I wish in this place, to make a recommendation to yon that I deem of vast importance to our farmers; and no other class of them can carry it out as readily as the dairymen. I refer to the compost heap. In speaking of it I am not talking at random, or by guess. Year after year has proved to me its value.

When I was a boy on my father's farm at the east, I was taught its worth by seeing splendid crops growing wherever it was used. Now, I should scarcely know how to carry on my buisness without it. You have every spring a large amount of course manure. For some crops it is too coarse to be valuable, and for others it would in a dry season, be an absolute damage. How shall it be utilized in such a manner as to make the most of it? My plan is substantially as follows. In the spring when we are hauling from the city or elsewhere, and get a load that is extra coarse, instead of putting it upon the land, it goes to the compost heap. The place is selected where it is convenient both to the land upon which it is to be used, and also to water.

At first it is usually thrown into a loose heap until a number of loads are there, and sometimes it remains until we begin to gather weeds. Then a heap is commenced say fifteen to twenty feet square.

Upon it, is thrown all the course manure, all the weeds, the potato tops, the vines, and the refuse of every kind that will add to its value. In a short time it gets to be six or seven feet high. Then another one is begun at its side. Of conrse they will soon commence heating and if let alone, would in a short time become dry and as it is termed fire fanged. This is prevented by throwing sufficient water upon it, to cool it and keep it wet, but not sufficient to drain from it. In case we get on a little too much as we sometimes do, a small hole is dug upon the lower side into which the drainage runs, and from which it is again dipped up and thrown back upon the heap. It should be made the receptacle of everything during the whole season that will add to its value. The contents of the pig pen, the privy, the henroosts, the soapsuds, and the slops from the house. When the team is not otherwise engaged, haul leaves from the forest, wash from the roadside, and muck from the swamps. With your large amounts of coarse manure to begin with, you may in this manner get an immence heap durring the year. Probably it will not freeze much during the winter. Early in the spring, I set men at work at my heap, and work it all over. During the process of decay it has packed closely together, and much of it will be in large solid lumps.

These are all broken up, and the whole mass is made fine and thrown into a loose heap, where it remains until it is wanted for use; which is generally but a very short time. Last spring, my heap, thus made, yielded, if I recollect aright, a little over 200 loads of well rotted, fine manure. I hope to have as much or more next spring. Now, as I am not a chemist, I cannot tell what a chemical analysis of such a heap would show. And it is possible that it might not show it to be rich in plant growing food.

But, gentlemen, I do claim to be a practical cultivator of the soil, and to know something of the practical value of such fertilizers as I am using year after year. I have seen and helped to use it all through my boyhood upon my father's farm, upon all the different crops grown there. I have used it myself for many years, and upon all the different crops grown upon my land, from the lawn about my house, to the voracious pie plant, that devours all kinds of manure with a rapidity that is unknown to most of the farmer's crops. And as a result of these years of experience, I say to you, that I have never used any fertilizer of any kind or variety with more complete and universal success than my compost heap. Of late years, we use them almost entirely as surface manure, that is, putting it upon the land after plowing and harrowing it in. I attribute much of its value, not so much to the great amount of plant food contained in it, as to the fact that it is in such a condition that the young and tender plants, of whatever kinds they are, can appropriate it to their rise, and, in this manner, get an early, strong and vigorous growth while young, which it would be impossible for them to get from any variety of coarse manure, although it might be much richer in plant food. And, we all know, that a crop well started, is much more than half secured.

In recommending this, as I do, I do not wish to be understood as disparaging or in any way underrating any other kinds of fertilizers. Some of them are very valuable, but cost considerable sums of money, and can only be obtained with the money, while this one can be obtained in large quantities by all of our own dairymen at some cost of care and labor, but with very little or no money. Another advantage of the dairyman is this: His receipts for his products are coming in during the season when he needs fertilizers, and, if he is as wide awake and as observing as he should be, he can tell very quick, after his seeds come up in the spring, what is needed to help along the ground plants and make the yield a large one, instead of a moderate or a poor one. It is often the case that one bushel of plaster on an acre of clover or of corn, after they have started in the spring, will double the crop. And yet, how often do we hear the complaint that the farmer has no money to buy plaster with. If he is depending upon his grain, his sales are usually in the fall or early in the winter, and by the next spring he is out of money, and must wait until his crops are harvested and sold, before he has the means to spare. By that time the season is over, and the next spring the old story of no money is repeated, and so it goes year after year, until his farm is run down, and he is prepared to sell out, or be sold out, and moves west.

The value of gypsum, or land plaster, is so great upon some soils, and some crops, that of clover in particular, that no dairyman should ever think of discarding or condemning it until he has tried it thoroughly for himself. In some cases its effect upon clover is almost marvelous. Upon other soils, and apparently under the same circumstances, it seems to be of no value whatever. As a general rule, it may be said to be valuable upon any timber lands and openings. The most so upon the latter; and the least valuable upon prairies. I have studied the subject with some care, have spent some time and money in making experiments with it upon different crops, but have come to the very unsatisfactory conclusion, that I know but very little about it. Wood ashes are almost invariably good upon all grass lands, and should be husbanded with care, and never allowed to go to waste. I purchase them at 25 cents per barrel, in the city, and consider them a cheap manure at that price. Upon pasture land I should put 25 bushels of unleached ashes per acre, and double that amount if leached. It is said by some of our best authorities, that lands that have long been in pasture, even though they may have been well kept up with common manure, lose the power to furnish a sufficient amount of bone making food to keep the stock in a healthy condition. In this respect, the oldest of our dairy farms in this state are comparatively new, and probably there is no harm done in this direction. Still I would urge upon dairymen the use of bone dust, as an exceedingly valuable fertilizer, upon grass lands, and also as a preventive of the danger above referred to. The most remarkable results that I have ever seen produced upon a farm by any fertilizer, was by the use of bone dust upon a poor, worn out, mountain farm in my native county. Whenever you purchase it, get only of the finest quality. Much that is offered for sale is but little better than gravel, from the fact that it is not ground sufficiently fine. All plant food must be reduced to a liquid or gaseous form before it can be appropriated by the growing plants as food. Hence the necessity of having bone dust as fine as possible. I have spoken longer upon the subject of manures than I at first intended, but its vast importance must be my excuse. The question of how to keep up and increase the fertility of our land, is one of such importance that it would scarcely be possible to over-estimate it. Without caring for this, your other interests must inevitably fail. You may get the most valuable herd of cows in the land, and what are they? Simply machines for turning the feed upon your fields and in your barns into milk and cream, from which you may manufacture cheese, butter and pork. If your fields will not supply an abundance of rich and good food, which your herd can turn into a good article of milk, the more expensive and valuable they are, the worse off you are, because you have been to a great expense to get a lot of first rate machines, but have neglected to carry out the measures necessary to supply them with the desired quantity and quality of food they need for the purpose of doing the work you desire to have done. Do not understand me as underrating the value of good stock. But, on the contrary, I say get the best there is to be had, and be content with nothing else. As a general thing, good stock and improving farms are not separated from each other.

When I think of what has been done by the dairymen in this state within the last ten years; how the business has grown from almost nothing to its present proportions; when I remember that only a few years since, Wisconsin butter and cheese, if quoted at all, was only mentioned as something unfit to be eaten by civilized people; when I think of these things, and look at the quotations week after week, from the highest authorities, and see our best grades of butter and cheese quoted a little higher than the highest price for New York state articles of the same kind, I am proud of Wisconsin and her dairymen. Although not one of their number, I am glad to know that I may claim, at least, some of them as my friends. But, great and grand as is the work that has been done, if they look at it and take hold of it aright, it seems to me there is one of the most glorious openings now presented to them, that has ever been known to any class of our people. You have manufactured a first class article, until you have compelled the world to acknowledge it, and say to you, "make all you can, and as long as you keep up the quality we will take it and pay you a fair price for it." Now, suppose that you go immediately to work and put your farms down to, I will not say the best they are capable of doing, for that is something our wisest men have not yet learned; but to the best that our present cultivaters are capable of doing, and what would be the result? The crop of hay in the state averages about one ton per acre, yet it is well known that three to four tons may and have been grown to the acre. That of wheat is about 13 bushels, while 30 to 40 bushels can be grown. The corn crop averages about 35 bushels, while one man upon the hill side, in one of the counties of Northeastern Pennsylvania, raised, last year, 181 bushels upon an acre, and that, too, upon land that is far from being equal in its natural fertility to the average of our Wisconsin farms. An average crop of potatoes is 100 bushels; yet, I have seen at the rate of 640 bushels grown per acre. I doubt if the crop of mangel wurtzel beets average more than 500 bushels per acre, yet I have had one crop gathered from my own land that yielded at the rate of 2,460 bushels per acre. If we go into small fruits, the same wide difference exists. The crop of strawberries does not average more than 40 bushels per acre, while, in the summer of 1875, there were picked 111½ bushels from one-fourth of an acre of land in my garden. The average yield of butter from our cows will not much exceed 100 lbs. each, per year, and that of cheese can hardly be rated at more than 300 lbs., while it is well known that 300 lbs. of the former and 600 to 700 lbs. of the latter have been and may again be obtained from good stock, when well fed.

Now, gentlemen, I will not say that you can make your farms average such crops as have been named, but the point that I wish to make is this. No class of farmers are so favorably situated for going into a system of improved cultivation as you are. None so favorably situated for at least approximating to these possibilities as yourselves. You have shown your ability to cope with the best and ablest men upon this continent in your particular branches of business. Sheboygan county dairymen are justly proud of their $450,000 worth of cheese in a single season. Suppose they should adopt a system of improvement that would in a few years increase the fertility of their farms until they should come near these large figures. Their present yield of cheese and butter would be but as a drop in the bucket, compared with their receipts under such a system of culture. And if the dairymen of the state would with united hearts and hands adopt, and with an intelligent and persevering energy carry out, such a system for a term of ten years, I believe, as firmly as I believe that the sun will continue to rise and set, that at the end of that time you would have distanced all competitors, and that the dairymen of Wisconsin would stand without rivals or peers upon the American continent. Gentlemen, I do not intend to be wild or extravagant, and do not believe that I am so. I do not intend to deal in theories which you cannot possibly realize. But is not this a worthy prize? Is it not one worth your seeking, and worthy the metal of Wisconsin dairymen? To grasp and to hold it, will require years of labor; not only that, but it must be labor directed by well cultivated and intelligent brains, by one that can plan and direct every part of the improvements to be made upon the farm, and they will be many. New drains are to be planned and made. Immense heaps of manure are to be got together, and then they must be used in such a manner as will be the most useful. Other fertilizers are to be purchased and used, at such times and upon such crops as will bring the best returns for the money invested. Immense crops of green food for summer, and roots and other food for winter, must be had. The farm must be made to increase, both in its crops and in its fertility, each year. In short, large crops must be made the rule, and not the exception. The best of stock for your particular purpose must be obtained. It must be well kept and well cared for. It must be fed at such times, and in such quantities, and with such food as will give the best possible returns for the amount fed out. The best possible grades of both butter and cheese must be made, and in the largest amounts possible. The best markets are to be sought out, and the most reliable men in those markets. All these, and many other things, are to be planned and conducted to a successful termination. And do you think that all this can be successfully conducted by a thoughtless, heedless ignoramus? I tell you nay. He must be a man of intelligence, of thought, and of constant care. Gentlemen, you have already done much, still you have not attained to that high position where you can by any means afford to rest upon the laurels already won.

As I close, let me say to you, let that grand old motto, Excelsior, be emblazoned in letters of light upon your banners. If there are laggards and drones in your ranks, as there doubtless are, leave them behind, and press on in your work until you reach and grasp the prize so worthy of your best efforts.

But while doing this, forget not your homes, but make them the sunny spots of earth to those about you; make them the havens of delight for yourself and for your friends. Make them so pleasant and so happy that they will be worthy of yourselves, worthy of your friends, worthy of the high and honorable occupations in which you are engaged.

# PIONEER DAIRYING IN WISCONSIN.

## CHEESE MAKING IN JEFFERSON COUNTY FORTY YEARS AGO — WHO WAS THE ORIGINATOR OF THE FACTORY SYSTEM?

BY J. G. PICKET, PICKET'S STATION, WINNEBAGO COUNTY.

Perhaps at this time, when the amount of cheese manufactured in Wisconsin amounts to millions of pounds annually, and in Jefferson county alone, to a larger amount than was manufactured annually in all the states west of New York, at the time of the inauguration of the factory system, a few words in regard to pioneer dairying in Jefferson county may not be without interest, especially to the early settlers who are now present, being confident of having, as a boy, assisted in running the first cheese factory, on the co-operative plan, operated in this county, if not in the state.

Mr. X. A. Willard, in his excellent work, Practical Dairy Husbandry, page 215, notes an historical incident in connection with cheese making at an early date in the state of New York, which has made the name of Mr. Jesse Williams known in all countries where American cheese finds a market, or is consumed, as the originator, in the year 1851, of the American, or co-operative system of cheese making.

Without wishing to rob Jesse Williams of the honor which history has given him, as the originator of the factory system, I must, however, protest against the generally accepted fact that, in no other section of the country had the system of associated dairying been successfully carried on previous to Mr. Williams' very successful achievement, in manufacturing simply the milk of his own dairy and that of his father's into cheese.

At the present day, in visiting a modern cheese factory, seeing all the improvements in the process of manufacturing, the labor saving machinery, and the improved method over the old of delivering the milk at the factory, we cannot help but wonder that our mothers succeeded as well as they did in making a quality of cheese which was not only palatable, but often of real excellence, whose greatest fault was merely a lack of uniformity in the season's product.

In the year 1840, my father, Mr. A. Picket, removed from the state of Ohio and settled near Rock Lake, in the town of Lake Mills, in this (Jefferson) county. But a very few pioneers had preceded him, and civilization in this part of the then territory of Wisconsin was in its infancy. The great wave of emigration which had begun peopling the western states farther east had hardly reached here. The Indian was master of the situation, and although occupying a home with an extinguished title, was yet monarch of all he surveyed.

The early pioneers saw at once that, in the boundless expanse of grass growing over the beautiful openings, and lower or marsh grounds, that the material from which butter and cheese could be made was growing in almost tropical luxuriance all over the country; that there was millions in it, but which, for the lack of cows to convert the grass into milk, was consumed by the fires which had for centuries swept over the country.

The territorial capitol was then being built, and a score of workmen were erecting the prospective blocks which, although rude in construction, were to form the nucleus of a beautiful city, the proprietors of which, having an abiding faith that the city might some day equal in magnitude its rival, the ancient city of Aztelan, from which it had so lately stolen the march, and carried to Madison the location of the territorial capital.

A territorial road had been laid out from Milwaukee to Madison, upon which, at long intervals, had been erected stopping places, dignified by the name of hotels.

At Milwaukee a smart village was already built, and still growing, and having, as its founders predicted, all the elements necessary to enable it to out-strip its only rival, located on the left bank of Crawfish river, the half-way house to the capital, the ancient city of Aztelan.

The pioneer saw that all these improvements meant a demand for something to eat; nay, even the luxuries of life — butter and cheese.

It is true, I believe, that butter advances with civilization, but in no case precedes it, while cheese follows; the period dating, perhaps, with the advent of the stage coach. But at the period of which I am now speaking, I am very sure there was no stage coach in Jefferson county, and but very few in the territory.

However, the people had arrived at that point of refinement when they longed for cheese. My father saw the opportunity, and so, in the spring of 1841, set about supplying the demand. He had driven from Ohio ten cows, but he was satisfied that with that number he could not supply the demand in the territory, and I am very confident that he had no competition in the business, but there were no cows to be bought at any price, and had there been any for sale there was no money to pay for them. But the idea suggested itself to my mother, why not co-operate with our neighbors in cheese-making? It was a capital and original idea, and was at once adopted by the head of the family. We had four neighbors by this time which, by the way, constituted about one-third of the inhabitants of the town — D. H. Nash, Mark Kilbourn, H. W. Barnes and Donald Stewart. The four families owned ten cows.

James Payne and Henry Abbey were the joint proprietors of the ancient city of Aztelan, as well as of a fine farm fronting the whole length of the city on the west. The proprietors had become somewhat tired and a good deal discouraged, in fact, so utterly disgusted with their short experience at farming and with real estate business in general, at the conclusion of the capital contest, that they proposed renting their cows, ten in number, to my father. The terms were a return of one-third of the amount of butter and cheese made, and the calves which they should raise; the contract to run two years, and the owners to winter the cows. The offer was accepted, and the arrangement proved satisfactory to the parties.

The plans all being completed, on the first day of June, 1841, my mother, with myself as assistant, made from the milk of 30 cows, owned by six patrons, the first cheese manufactured in Jefferson county, and I verily believe, the first manufactured under the co-operative system in Wisconsin, and exactly ten years before Jesse Williams, in 1851, earned the historical notoriety of organizing the American Co-operative System of Dairying. The little kitchen factory in the log house was operated on precisely the same principles as are the mammoth cheese factories of Jefferson county, having the patronage of a thousand cows, at the present day. The milk was carefully weighed and credited to the patrons daily, and in the fall the cheese was divided or apportioned. No one in those days thought of cutting a cheese under five or six months of age, so when the little factory closed the season's work the patrons drew their respective shares in cheese instead of cash proceeds, as they would now do, and were happy.

The experiment was, I believe, in the main successful. The problem was solved that good cheese could be made in Wisconsin, and from grass growing wild all over the country.

The implements used in the pioneer factory were all rude and to a modern cheese maker would seem wonderful. Yet the quality was fair, not taking into consideration uniformity, and met with ready sale at a shilling a pound.

The experiment proved so satisfactory that in the following year, 1842, five more cows were added by the arrival of two new families, and the cheese became known from Milwaukee to Madison.

I must not omit to note the primitive way of delivering the milk at the factory. All the cattle belonging to a settlement in those days grazed together in one herd, and at night the cows were all driven to my father's yard and milked by their respective owners, which was weighed in pails by the old-fashioned steelyards.

The foregoing is not written with the expectation of interesting any but the small band of early pioneers of Jefferson county, the faces of a few of whom I see in the great gathering before me to-day.

The history of any branch of industry, as well as of our country, for a period of forty years, marks great and important changes. The gratifying fact, that our state is rapidly coming to the front, not only in the quality, but in the amount of its dairy products, gives occasion for comparison with this branch of farm industry, as conducted at the present time, and during the early settlement of our state. And it is with no less feelings of surprise than of sadness, when, after an absence of more than thirty-five years, I am reminded, upon my present visit to the beautiful city of Whitewater, of the changes which have transpired since, when a boy in 1840, I made frequent pilgrimages to the Whitewater grist-mill, and slept over night on the floor of the miller's house — then the only one in the city.

# FEED OF COWS.

BY W. S. WESCOTT, MONROE.

There is probably no question upon which dairymen differ so widely as what constitutes the best food for cows, nearly every one having a theory and practice of his own which he believes to be the true one, and this undoubtedly grows out of the fact that the business is comparatively new in this state, and also from a want of interchange of thought, observation and experience, thereby showing something of the benefits resultiug from holding conventions of this kind.

I think there is no question that, considering the cheapness of feed and our facilities for obtaining it, the certainty with which we can grow it on our own farms, we do not feed high enough. We are not educated up to the standard that high feeding pays best. "We cannot eat our cake and keep it too." We must not expect large receipts without large expenditures in the way of labor and feed, else we shall meet discouragement and disappointment. By high feeding, I do not mean that we shall feed all that cows can eat, but feed judiciously of the proper kinds at the proper time, and in a proper place. I visited the dairy sections of western and eastern New York, something over a year ago, early in September, and found them, without a single exception, feeding sound corn. On every farm a piece of probably four or five acres, highly manured, and near the barn, was sown to corn, and cut and feed to the cows, morning and evening, and was considered to be superior to any other feed for September and October, and I would confidently recommend this plan to the diarymen of Wisconsin. This will involve more labor, but external vigilance is the price of success in the dairy business, and no indolent man need engage in dairying with any hope of success, as the door is positively shut against him.

Many dairymen complain that they cannot afford to buy grain, and mill feed, and to a certain extent this is unquestionably true, and the remedy must be found in increasing the fertility of our farms in manuring; in a judicious rotation of crops, make our farms so productive that we can raise the feed for our cows. Something has been said in this convention about competing with the British farmer and driving him from the manufature of cheese. We can never do this until we adopt a more perfect and thorough system of farming. The British farmer can grow two crops in the same year upon the same piece of ground. We may, by thorough farming and manuring, become able to grow two crops of grass upon the same land, and the last one or aftermath would be very valuable for feed for cows. Clover is also a very valuable crop for the Wisconsin dairyman to raise; it makes excellent feed for cows, hogs and other farm stock. Some person advertised that upon the receipt of one dollar, he would send a recipe for getting rich; a friend sent the dollar and received in return: "Work like the d—l and don't spend a cent." If I were called upon to write three different recipes, by which the Wisconsin farmer should become rich, I would write them all dairying and clover.

The success of the dairy farmer will depend largely upon the care and treatment be bestows upon his cows; and it is perhaps due to neglect and inattention in this particular that many become discouraged, and claim the business does not pay a profit. Cows require constant and unremitting care, not only in feeding, watering, stabling, etc., but in handling, kindly and gently, without dogs, worry or loud talk; require milking regularly, quickly, quietly, thoroughly and well. Without an observance of these rules success will not come, and there is greater loss to the dairymen of Wisconsin to-day, from inattention to the above rules, than from all other causes combined. Doubtless there are many cows kept in our dairies that are poor milkers and ought to be turned for beef; some may overstock and thus keep down the average product per cow; but in the main, the true cause of the present low average product per cow in Wisconsin is to be found in a want of skillful handling, generous feeding, regularity and care in milking. It was shown on yesterday, by Mr. Hoard, most conclusively that, all other things being equal, New York could not compete with Wisconsin in the manufacture of butter and cheese on account of the increased cost of cows' feed, etc., in that state; but it must be borne in mind that they do most successfully compete with us, and it must be by reason of their superior skill in handling, feeding and milking their cows; thus increasing their average product per cow largely above that of our own state, and in many instances, doubling it. I make these assertions with comparative security, since Mr. Hoard has stated, and undoubtedly truly, that Wisconsin dairymen do not know whether they are making large or small profits; and I think it better for all concerned that these facts should come out now, that they may be corrected, and a better state of things inaugurated. Let us open an account with our cows, feeding them more faithfully and generously, milk them more carefully and regularly; charging them with what we feed them, and giving the credit for what they return; and, on striking a balance, be able at our next annual convention, to show what our profits really are, and show a larger product per cow than heretofore.

## FEED OF COWS.

### BY D. L. FLACK, ELKHORN.

Several weeks ago, I received a programme for the dairy association to be held in Whitewater, Jan. 23d and 24th, and was quite surprised to see my name among the speakers for the occasion. I am but a babe in the business, and should have enjoyed a sitting in the convention for the purpose of being benefited by those of larger experience, but was prevented from attending by circumstances beyond my control, and by request of the secretary will send in a few thoughts gathered from my limited experience. I consider the quality and quantity of food our cows consume, one of the most important points in dairying; and as a matter of economy in quantity, to say nothing of the comfort of our stock. Let us first build warm, roomy, and well ventilated barns. It has been estimated by those of more experience than myself, that one-third the quantity of food is saved in this way. Food is fuel to a large extent, and if a cow is compelled to wage war with every cold storm from November till April, she must necessarily consume more food than when she is well housed. I do not wish you to understand that I am advocating short feed, on the contrary, I am of the opinion that a well kept "scrub" is more profit to its owner than a shivering half-starved Durham or Jersey. And the matter of ventilation is also an important one. I have been asked, Do your cows give any more milk for having that cupola on your barn? Perhaps not, but they do give better milk. The man who sleeps in a six by eight room, permeated by the fumes of rotten vegetables from his cellar, cannot be healthy, and we should look to the health of our cows, inasmuch as we expect a financial benefit from them.

As I said at the outset, I am young in the business, but will give you my mode of feeding throughout the year. In summer, when the grass is young and tender, I consider that sufficient, but for fall supply, I plant several varieties of corn, such as sweet corn, fox-nose and dent; plant in drills, cultivating one way; feeding once or twice a day, as may be needed, to keep up the usual flow of milk. As the season advances, but before frosts appear, I cut up the remaining corn; after frost comes, I feed mangel wurtzel beets once a day, and the cut corn once a day; still later comes hay and ground feed, equal parts of corn and oats, then again buckwheat bran and corn, and occasionally a mixture of wheat bran with corn and oats, five quarts twice a day to each cow. My hay is timothy and clover mixed, and some clear timothy. I have found by observation that cows, like ourselves, like a change of diet, and that to neglect their welfare in any particular, is to neglect our own interests.

## DAIRY FARMING AS A RENOVATER OF IMPOVERISHED SOILS.

BY S. G. WEST, ELKHORN.

Sec'y Walworth Co. Agricultural Society.

The subject under consideration is one that I have no doubt has engaged the attention of every member of this association more or less for the last ten years. And though I may not be able to give you any new ideas, I assure you the paper I have to present at this time possesses at least one merit, and that is brevity. Looking from the standpoint of an early settler, I have witnessed all the changes that have transpired since the days when we used to harvest 30 and 40 bushels of wheat from each acre, dotting our fields over with clusters of huge stacks, the straw of which was consigned to the flames, and the grain would keep us busy the most of the year marketing. We have seen these stacks grow *smaller* and *less* ln number until we had no grain to market, and the stern reality stared us in the face that we were like the boy "out of meat." Families to support and educate, improvements to make, taxes to pay, and nothing to do it with, brought us to a realizing sense that we had been selling our farms by the *bushel*, until we had but little left. Something had to be done. What should it be. Some of the doctors said *plow* deeper, till better, sow clover and other green crops, plow them in; use plaster; all good in certain cases but in our case too slow and too expensive. We cannot fight chinch bugs and all our other enemies, pay our expenses and renovate our farms by raising grain for market. This, to many of us, I am aware, is an unwelcome admission especially to the old settlers that have lived through the golden age of successful grain growing. Yet I need not furnish any elaborate statistics to prove it to a company of men as conversant with realities as these here present to day. The question, then, can we improve our impoverished soils by dairy farming, becomes almost a vital question with us, as we are seeking a way out of the embarrassment that we are in.

Without attempting to give you the result of scientific experiments, I shall call your attention to a few general principles and prominent facts, in the shortest possible time. If there is any system of farming that will help us out of our present embarrassment and at the same time improve our lands, or in other words, if there is any way that we can sell the products of our farms and not have them taken off, certainly that is desirable. But say you, that is not the question at *this* time. Very true. To get at the question then, suppose you are in possession of one of those impoverished farms that I have spoken of, and you wish to renovate it. You will get cows (one or more, depending upon the size of yonr farm), *sell* the produce of your farm to the cows, getting your pay *every day*, and have nothing taken off that will impoverish the land; all will be left on the land for plant food to increase its fertility, thus enabling you to sell *more* and get *more* pay. I need not tell you that a proper application of a top dressing will double the yield of hay upon your meadow; you all know that. I need not tell you that keeping cows will do away with the necessity of buying guano or other costly fertilizers in order to raise large yields of *corn*, *carrots* or *cabbage*.

Did you ever think of it in this way, that the more you *sell* to your *cows*, the more they pay you and the more you have to sell. I could speak of the sure and proper payment received. Of the equal distribution of the labors through the year, thus enabling a a rmer to accomplish more in a year with a given amount of labor than otherwise. These and many other thoughts are suggested as closely connected to this subject, but I am aware that I am not expected to consider them at this time. But what I may say is this: The business of dairy farming will prove a powerful incentive to you to increase the productive capacity of your farms. I have no doubt you have all noticed as I have, that if a man goes into dairying he goes in *more* and *more*. The barns are enlarged to accommodate more cows; the house is enlarged to — to accomodate more easy *chairs* and *pianos*.

But that branch of the business to which my subject particularly refers is that the waste places of the farm are utilized in order to keep the *productive capacity* up to the demands of the market.

Thus while dairying increases the liabilities that your farm is under, it also increases the assets at a corresponding ratio, and impoverished lands steadily and surely become renovated.

## DAIRY FARMING AS A RENOVATER OF IMPOVERISHED SOILS.

BY F. C. CURTIS, ROCKY RUN, WINNEBAGO COUNTY.

In the discussion of the subject set apart to me by your Secretary, I deem it unnecessary to offer any argument showing its importance, but shall assume that all soils, however naturally rich, unless renovated by manure or flowage, which has been under grain cultivation for five or more years, has become impoverished, or at least thrown out of balance and incapable of producing an average crop unless assisted by a favorable season and good cultivation. If this proposition is true as to five years, how reproachful the fact that a large amount of our naturally rich Wisconsin soils has been under cultivation upwards of thirty years, without renovation with manure or seeding to grass. I am well aware of the appologies for this wrongful practice, prominent among which are, pioneering with little capital, but muscle, compelled wasteful practices, and a little later the outside barbarians introduced fashions and customs that compelled one more crop of wheat to supply wants that appeared absolutely necessary. This demand for one more crop of wheat has continued so long that many of our best lands have become impoverished to such a degree that only a fair crop is obtainable in the most propitious seasons.

I wish to call particular attention to the fact that these impoverished soils still produce a fair crop in a favorable season, or when we have seasonable and regular moisture, while a drouth or want of moisture injures the crop much more seriously than upon new or properly cultivated soils. If this be true, and I see no reason for doubt, let us try and discover the reason. If we examine a new or well cultivated soil, we find it loose and pliable; the old worn soil we find compact and crumbly when plowed or cultivated, unless we have just the right degree of moisture, and even then it has not that nice friable appearance of the soil that has been properly cultivated.

Just what this much abused worn soil has lost in grain raising would take a Lieberg or a Johnson to determine, but as this is out of our reach at present, I will endeavor to give my rough mode of reasoning.

I assume that all forms of animal or vegetable life are the product of the earth and air; that upon reaching maturity or the end of its alloted existence, decay or decomposition takes place, faster or slower, according to its exposure to warmth and moisture, and if exposed sufficiently to fire, combustion takes place, and the inorganic portion remains as ashes, while the other part floats into the air. If we should take a sheaf of dry wheat weighing say ten pounds, and burn it, very little of the ten pounds would remain as ashes, which would seem to show that very little of the crop of wheat came from the ground in growing, but came mostly from the atmosphere. In one sense this appears true, but in another, it is not for the reason that the wheat, while growing, drew much of itself from atmospheric food or substance already stored up in the soil, in the shape of partially undecomposed vegetable matter. Our land, as we took it from the hands of nature, was rich in its stores of atmospheric food, which served two purposes, one as a plant food, the other its mechanical effect upon the soil. Our repeated and injudicious cropping has exhausted our soil of this stored up plant food, and destroyed also its mechanical effect in the soil, thereby causing this hard, lumpy condition of the soil heretofore alluded to, and taken from it that friable, loose appearance so desirable in cultivation. It would seem that the atmosphere is rich in plant food, but the plant can get it only by the dews, rains and snows, and I assume that we have greatly injured the powers of our soil to assist the plant in utilizing this plant food as it decends to it, by the hard, lumpy antifriable condition of the soil, heretofore alluded to. In other words, we have largely exhausted the soil of its atmospheric plant food, and in doing so we have also exhausted its powers to retain those substances that are returned to it by the elements, and destroyed, in a great measure, its power of retaining moisture, hence our worn soils can produce a fair crop only when favored by oft and copious moisture. Comparatively more benefit will be received by repeatedly stirring the soil around a plant on a worn soil than would be derived by the same culture to a plant upon a rich soil, the friability of the rich soil rendering stirring less necessary.

Said a noted attorney to his client, "If you are wrong, get right as soon as you can." This appears to me applicable in farming as well as in law, and I hereby recommend it.

Many a farmer will say, "How can it be done? Poverty, custom and ignorance hold me in the old course, and I feel powerless to mend my condition." When we can get the farmer's attention, and get him to admit that much, and incite him to try and inform himself as to a better mode of farming, there is some hope, but if he holds that the best minds of the past and present, through their agricultural conventions, dairyman's conventions and records of experiments, are useless, then his case is indeed hopeless. A reading farmer is able to avail himself of facts already demonstrated, and in many cases avoids failure and saves valuable time. The remedy for the prodigal, and the necessary and unnecessary waste we have committed in the cultivation of our soils, I deem comparatively easy, but the accomplishment of this desirable result requires a radical change in the management of our soils. There can be no renovation of the soil without manure, or a rotation of crops; one of the requirements of the rotation being grass one-half of the time, and that grass must be at least half clover, in fact, the more clover the better, so far as benefit to the soil is concerned. The stand of clover may be poor if the seeding season is dry and aggravated by the hard, compact condition of the soil, but we must do the best we can. On some soils a marked improvement to clover is plaster, sown broadcast, while on other land it is said but little benefit is derived. On my farm it is very beneficial, so much so that I could easily trace where the plaster was omitted, and I have been assured by a neighbor that he could trace the benefits of the plaster in the crop following the clover, the omissions plainly showing. I very much doubt that plaster will affect any crop after the clover, only by its adding to the clover crop, and undoubtedly its roots left in, would of course produce larger clover roots, and these clover roots I am depending upon for the quickest and most available means of renovating the soil. They seem to have the power of bringing back from the atmosphere and storing up in its roots much we have lost in that direction, and also of drawing from the depths below new matter for plant food, hence the larger the clover crop the larger the roots and the more plant food we have secured for future crops; we have not only secured great advantages in the direction named, but we have also produced a powerful effect upon the mechanical condition of the soil, as the next plowing and crop will verify.

Perhaps the old style of farmer will inquire what we will do with so much grass and hay. My dear sir, the dairyman will laugh at you for such an inquiry. He will tell you that the more grass, hay, oats and corn he has, the more cows he can keep, and I will add, the more cows he can keep, the more manure he can make, and the more manure he can make and properly apply to the land, the sooner he will restore it to its former and increased fertility. I insist there can be no prospect of a renovation of the soil without it is kept in grass half of the time, and stock, of some kind, to consume it, must be kept upon the farm. I have kept both sheep and cows, and I find that I can realize three dollars from the product of the farm fed to cows, to one dollar fed to sheep. True there is more labor in the care of the cows, but the extra labor produces extra dollars. Those who make ten cent butter, and there are many of them, may doubt my estimate, and if ten cents per pound is all that can be realized for butter, their doubts would be well grounded. The price current of Chicago shows that there are at the present time large quantities of butter in that city that cannot be sold for ten cents per pound. It also shows that good dairy butter brings from 28 to 30, and creamery 30 to 35 cents per pound. Those who make the 10 cent kind don't believe in book farming; those who make the higher priced kind are those who avail themselves of the recorded wisdom of others, who get up dairymen's conventions, go to them, and exchange their views and knowledge upon the subject, hence they are enabled to make the best goods the nature of the case will admit. Says the Milwaukee *News* of a late date, "Since Wisconsin cheese and butter have been exhibited at the centennial exhibition, they have been given a rank with prime New York butter and cheese, and now command nearly the same price in the eastern states." Let us give due credit to our enterprising citizens who instituted this association, and invited the best known dairymen of our state to exhibit their dairy products, with the happy result so beneficial to our interests.

Some ten years ago I began to turn my attention to dairying as a means of renovating my much abused farm. I reasoned that I could keep a certain number of cows, and that I could keep a hog to each cow to consume the sour milk, and I read Mr. Simon Brown's opinion from an eastern stand point, "that the man that did not make eight cords of manure to each hog, did not live up to his privileges." I hardly tried to carry out this latter advice, but I have steadily improved my crops and the condition of my farm.

There was one thing I could not understand, and that was why I was obliged to sell butter at one little market town at so much less than the market quotations of Chicago. To solve this problem, I visited the state fair at Milwaukee in 1872, where I met Mr. Hoard, who gave me valuable information. I have noticed a statement that a first class article of butter can hardly be made by the small dairyman. This is true to a certain extent, and somewhat discouraging, but it is very true that the small or farm dairies of our state can be much improved and reap a great benefit by the improvement. It may not be inappropriate to say that I represent only the small dairyman, that it is a comparatively short time since I commenced looking for more knowledge upon the subject, and since I have commenced showing the result of my labors at the fairs, etc., I find dealers anxious to purchase at satisfactory prices. The great trouble seems to be that the farmer fails to learn, remember or appreciate a few of the ground rules or requirements that are absolutely necessary to success; but as this part of the subject was not set apart to me for discussion, I will close, urging your studious attention to the subject.

As Mr. Curtis was about to retire, the following questions were handed him for replies:

1. How long should milk be allowed to stand before skimming?
2. Should it be allowed to sour before skimming?

3. In what degree of temperature should the milk stand to procure the greatest amount of cream, and the best quality of cream?

4. How much salt, and what kind of salt, should be used to a pound of butter, in order that it be well flavored and keep well?

5. What is the best method of treating the butter after it is churned? Should water be used either in the churn, or after it is taken from the churn? How often should butter be worked, if more than once, how long a time should intervene between the working of it over?

6. Is the farmer to have the charge of butter making, or is the farmer's wife expected to be responsible for the quality of the butter made on his farm? If the farmer's wife is expected in the future to have charge of butter making as she has in the past, ought she not to have a voice in the deliberations of this convention, being invited to present papers or by having some way provided whereby her opinions and experiences can be made known?

MRS. L. E. HAWES.

1. Milk should be allowed to stand from thirty-six to forty-eight hours before skimming.

2. A little souring is admissible, but do not let it get "loppered."

3. Temperature 60°, if much colder you do not get all the cream, or it gets bitter and specky if it stands too long — up to 65° — you will get fair results, but I hold to 60°; please consider all the foregoing letters in each word to weigh a pound each.

4. Three-fourths to one once of good dairy salt, to suit taste of customer; don't depend upon salt to keep butter; good milk temperature and expulsion of buttermilk without overworking, is the key of success. I have used Ashton & Marshall brands of salt, it is good. I do not know but the Onondaga and Saginaw dairy brands of salt are just as good. A large amount of store packed butter is ruined from the use of common barrel salt, and too much of it. Many a butter maker don't seem to mind the expense of three or four ounces of common barrel salt to the pound; so long as it weighs, it is right in his estimation.

5. If it has been churned in some lightning improved fancy churn, and the grain of the butter has been ruined by violent agitation, use it for cooking at your earliest convenience, no after manipulation will make it good butter. The old dasher churn will do good work, but it will drive the boys from the farm to become lawyers

and presidents of colleges, etc., if we are to believe their representations. I use the rectangular churn. If the foregoing rules have been observed, thirty to forty minutes of steady churning will bring the butter; yes, all of it; no dead or unchurned cream, and the work is nearly done. If it is June, and you wish it for long keeping, after drawing off the buttermilk add good pure water, a few turns of the churn is all that is necessary, but mind your water is pure. Some wells, supposed good and clean, that have not been examined for some time, have a mass of uncleanness in the bottom that make it very objectionable, ruinous. Add the salt carefully, without drawing motions of the ladle, rework carefully in about twelve hours, not longer than twenty-four hours under any circumstances, and pack at once. Over working or careless drawing motions of butter worker or ladle, injures the grain of the butter, a pressing motion is desired. Butter standing twenty-four hours before reworking would mainly dissolve the salt it contained, and too much working, however carefully done, would expel the brine, making an undesirable dry butter. I have packed butter in June, for experiment, only once worked when the salt was put in; it kept well; all the difference I discovered was, it appeared a little more moist and briny. We make our butter mostly from September to June, the cows being idle in the hot weather. We are very particular as to temperature, and as we make our butter for some one to eat, and not to keep, we do not consider it necessary to wash it to get out the buttermilk; but, mind you, even then the buttermilk must be got out; without washing, we fancy it has a little more of that nutty flavor, so toothsome to our city customers.

6. Rather mixed, and too deep for me, but I will answer as well as I can. If the farmer is to be permitted in future to do part of the voting, I do not see any impropriety in his sharing the labors of the dairy as well as all conventional honors with the good dairywomen of our state, in all meetings where they desire to take a part or contribute to its interest. But, my good woman, will you do it? I have tried my best to get a most excellent dairywoman to write out her knowledge upon this subject, but without avail; the best I can do is to question her and find out all I can, and then come up here and make believe I know all about it. As to sharing the labors of the dairy, by all means, yes; "give the old man a chance." If he has been to the expense of a rail fence on the south-

east side of the cow to keep off the northwest wind in winter, let him do the milking; if he sticks to the old dash churn, let him stick to it while the churning is in process, but don't try to make use of him to wash the milk pans or drive the flies out of the milk room. You might as well call to your aid a molasses cup, while from your own good presence they would flee like chickens before a hawk. Each one has their sphere; let each do his part; I should like to speak to these questions more at length, but the pressing business of the convention compels me to close; but before doing so, please allow me to thank the lady for giving me an opportunity to say a few hurried words on this important subject, and the convention for their attention and patience in listening to me.

## EDUCATION OF DAIRYMEN.

By R. P. McGLINCY, Elgin, Ill.

Dairy editor Elgin, Illinois, Advocate, and Secretary of the Northwestern Dairymen's Association.

The question to which I have been assigned is one of far greater importance than I at first imagined it to be, and one which I do not feel that I can discuss with advantage, or that I can say anything that will prove beneficial to the great mass of dairyman — men who are engaged in producing the milk which is used to manufacture the butter and cheese, for which this great northwest is gaining a world-wide reputation. This question is a delicate one, and when we discuss it in our conventions, I think there are those who will assume that we class the dairymen among the ignorant ones of the earth, but that is an erroneous assertion, and for one I would resent it to the best of my ability. The education of the dairyman as I look at the question, is not that which relates to a book education, for a man may be crammed as full of book knowledge as a cheese press is of curd, and yet be as ignorant of dairying as a Hottentot. In what I have to say I shall consider the education of the dairyman to be that which relates to a thorough and practical knowledge of the various duties he is called upon to perform, and I may add to the dairyman the butter and cheese maker, also, for I have no doubt but that in many instances their poor judgment and bad management has been laid at the door of the dairyman, who had as little to do with the affair as the man in the moon.

But to the question. What should constitute the education of the dairyman — one who is engaged in producing milk? Should we expect him to be a man well read in law, theology, politics, the science of government, and be a thorough geologist, or should we expect to find a simple granger, who possibly could do an example, if not too complicated, and who is capable of figuring interest on a note for a given time. The accomplishments enumeratend might all be dispensed with, and still the dairyman would be an educated man, to a certain extent. Now I take the question to mean a man educated in his profession, so that he can readily follow it for a livelihood without being compelled to call upon Tom, Dick and Harry every few days to know whether he is right or wroug. There is one thing in regard to the dairy business that I do wish to say a word upon, and it might as well, perhaps, be uttered here as elecwhere, and that is that far too many men are in the business who are not "educated to it," and who are destined to bring disgrace to the profession. An educated dairyman should have no little knowledge of cows — the various breeds, their habits, constitutionl organism, diseases, and cures for the same, so far as that lies within his power. In studying their habits he would learn the quantity of food a healthy cow would be likely to require — the particular kinds she would relish, and upon which kinds of food she improved best, both as regards the quantity and quality of milk and the taking on of flesh. He should be educated so as to know that punctuality with a cow is of great importance — punctuality in feeding, watering, milking and stabling. Serious losses are the result yearly, either from a lack of knowledge or gross carelessness, in regard to the value of punctuality. To many this will doubtles seem a small and insignificant matter, but I think it one of great importance, and those who have observed this peculiarity are aware of it, and would just as soon think of being tardy in this as in any other business. Then the dairyman should learn punctuality.

The educated dairyman will be found in various localities, and where found, you will observe that he has everything in its place, where he can lay his hand upon it when wanted. His fences, stabling, granary and everything connected with his farm and stock is in a neat and tidy condition, and he is always at home to visitors; that is, he is always ready to show his cows or buildings, because being an educated man he keeps all things as they should be kept. I once knew a thrifty farmer who made it a rule to examine his fences once a week, to see that no bars were down, gates swinging on broken hinges, or boards loose. He was an educated man in that by watching his premises and taking a "stitch in time, saved nine" as the saying is. But in contrast with this man, who was a model farmer, let us look at another; and this latter one is very numerous — in fact he is found all over the country. In yonder fence corner you will find his plow, just where he left it when he finished the field; it may be that he has kept its lonely guard in that fence corner since last spring. There in the middle of the field stands the mower, and he will find it there next season when he wants it, perhaps a little the worse for having been exposed to the storms of winter; and so I might go on enumerating the articles left to take care of themselves in that manner. Would you call such a man educated? Do you think the picture overdrawn? Look around you and see if there is not such a one in your neighborhood, and think you, if he should turn his attention to dairying, he would forsake his old habits? He might, but it is very doubtful. And it is just this class of men who bring disgrace upon any profession they may follow.

Recently Hon. Harris Lewis, of New York, is reported to hav said "that a filthy man, with filthy hands, milking a filthy cow in a filthy stable, into a filthy pail, is the perfection of filth," and I think Mr. Lewis is right in his conclusions, and I do not think any of you would consider that dairyman an educated man, although he might be rich in classic lore and able to read the rocks and the stars, yet he lacks being educated in his profession. An editor commenting on Mr. Lewis' statement, carried the "filthy" comparison on further as follows: "It may be the *perfection* of it, as far as these operations go, but it is not the *completion* of filth. The milk must first go through the usual processes, and be strained by a filthy milkmaid or milkman, through a filthy strainer, into a filthy receptacle, sitting in a filthy dairy house, with filthy surroundings and reeking with a filthy atmosphere; then skim it with a filthy skimmer, into a filthy churn, churn it with a filthy dog, in a filthy place, take the butter out with a filthy ladle into a filthy bowl, wash it with filthy water, salt it with filthy salt, pack it in a filthy tub, and store it in a filthy place. Then let it be sold by a filthy dairyman to a filthy dealer, who disposes of it to a filthy retailer, who keeps a filthy stall or grocery, dips it out with a filthy paddle, into a filthy sheet of filthy paper or a filthy dish, weighs it on filthy scales, and delivers it by a filthy boy to a filthy patron, and the filthy picture can be completed by a filthy imagination." It does not require education to evolve all that filth. But reverse the picture and then see what education does. Of course all dairymen are not like the last one remarked upon, but these pictures are necessary to bring out the good qualities of the dairyman, and show what education or proper training will do for people.

There is undoubtedly absolute waste in the dairy business, as those engaged in it have not been thoroughly educated or trained, and until they are systematically instructed there will be great waste in this branch of our industry.

If we thus speak of those who produce the milk, what shall be said of the host of incompetent butter and cheese makers? They are positively more injurious to the business than the producer, as through their ignorance greater losses are sustained. A few years ago it used to be customary to indenture boys to capable mechanics for the pupose of having them taught the trade they proposed to follow, and the term of the indenture was rarely for a less period than five years, and often for seven. A good workman well knew that unless a boy put in a good deal of time, he would be a botch, and do more injury than good, hence when a boy was indentured, his employer controlled him for a series of years as though he owned him, and as a rule it was for the boy's good. This may have the appearance of barbarism, but it would be better that than to have every other boy who undertook to learn a trade prove a regular botch workman. Does a law student or a medical student get through by studying a few weeks or months? Then why should a butter or cheese maker be considered a master workman who has only spent a few months in the factory? I have in mind now a cheese maker who never made a pound of butter in his life, but who was anxious to learn, and for that purpose spent two full weeks in a creamery to learn the modus operandi, and at the end of that time set himself up as a first-class workman. Now was he sufficiently educated for the responsible position of butter maker? When we need a doctor or a lawyer, we are very apt to select men of experience, and so it should be with the manufacturers, especially if they desire to place upon the market a saleable article. A cheese maker should serve a regular apprenticeship at the business, and when he has graduated be able to give satisfactory reasons for the modes he may employ about his work. But most of the cheese and butter makers are anxious, apparently, to get through their days' work, and do not care for the consequences. If they are lucky enough to make a lot of cheese which happens to suit the market, they are satisfied, and on the other hand, if they, as they term it, are unlucky, they blame the producers with the fault. Had I time, Mr. President, I might carry out suggestions in regard to the education of dairymen, but in conclusion will say that no one should be rated as an educated dairyman or manufacturer, unless they can give satisfactory evidence that they are qualified to perform the work they may undertake.

## REPORT OF COMMITTEE ON BUTTER.

Your committee, appointed to pass judgment upon the butter entered in competition for the several premiums offered, beg leave to report as follows, viz.:

After as careful an examination as time and circumstances would permit, the Charles Baltz prize, offered by Charles Baltz, wholesale dealer in butter and cheese, 113 South Water street, Chicago, for the finest tub of butter made in Wisconsin, was awarded to F. C. Curtis, Rocky Run.

The Cornish and Curtis prize, offered by Messrs. Cornish & Curtis, Ft. Atkinson, for the best and finest plate of butter, in pound or half pound prints, was awarded to F. C. Curtis, Rocky Run.

The Tivy & Purcell prize, by Messrs. Tivy & Purcell, butter and cheese and general commission merchants, 424 North Second street, St. Louis, Mo., for the best two tubs of butter of not less than 35 pounds each, was awarded to William Marshall, Whitewater, and John Porter, Mazomanie; to each one-half of both premiums, as both lots of butter graded precisely alike in the aggregate.

The A. M. Gilbert prize, offered by A. M. Gilbert & Co., 95 Lake street, Chicago, general western agents for Howe's Improved Scales, for the best tub of butter, was awarded to Mrs. David Whitehead, Whitewater.

The entries were made by number, and judged by samples brought to the committee in a separate room from the exhibits, and the names of exhibitors withheld from the committee until after the awards had been made.

We regret very much that the time was so limited as to prevent our making a more extended report, thus giving our reasons for making the awards as we have, in hopes that much of the benefits to be derived from these exhibits might be drawn from the critical examination and report of a competent committee.

H. M. CHAPMAN, Randolph,
D. S. EWING, Whitewater,
W. F. HOVEY, Whitewater,
*Committee.*

W. D. Hoard, chairman on resolutions, asked leave to submit the following resolutions and memorial:

"*Resolved*, That the thanks of this association are most sincerely tendered to the people of Whitewater, for the whole-hearted hospitality and aid they have extended to this convention.

"*Resolved*, That the thanks of the Wisconsin Dairymen's Association be tendered to our retiring president, Hon. A. D. DeLand, for the able manner in which he has discharged his duties as presiding officer of this convention, and for the efficient aid he has rendered the dairy interest of the state during the term of his office.

"*Resolved*, That this association desire to express their sense of obligation to our worthy secretary, D. W. Curtis, for his efficient labors.

"*Resolved*, In view of the excellent reputation which has accrued to Wisconsin by the centennial and other public exhibitions of dairy products, this association would recommend that necessary steps be taken to give the dairy products of Wisconsin a proper exhibition at the Paris exhibition.

"*Resolved*, That the thanks of this association are most cordially tendered to Messrs. George S. Hart & Howell, Messrs. A. W. & F. W. Leggett, New York; Messrs. A. M. Gilbert & Co. and Charles Baltz, Chicago, and Messrs. Tivy & Purcell, St. Louis, for their liberal premiums on butter and cheese."

The resolutions were unanimously adopted.

## MEMORIAL.

" *To the Honorable, the Legislature of Wisconsin:* Your memorialists, the State Dairymen's Association of Wisconsin, in convention assembled, would respectfully represent that the dairy interest has grown to be one of the most important in the state, both in respect to the amount of its productions and the certainty of its returns; that to its continued success, reliable information is of vital importance; that under the present law, assessors are listing cows as neat stock, under which name it is impossible to arrive at any accurate statistics of the number of cows in the state. Your memorialists would, therefore, pray that the law may be so amended that assessars shall be obliged to list cows separately from the other neat stock."

Mr. Hazen moved that the same be adopted, and that the secretary be authorized to sign the names of all the members to the memorial, and present the same to the legislature.

Carried.

**TABLE** *showing the entries for the Butter Prize, and the award of the judges on a scale of* 40.

| | No. Package. | Flavor. | Salt. | Grain. | Color. | Total. | Grand total. |
|---|---|---|---|---|---|---|---|
| C. P. Goodrich.............. | 132 | 10 | 10 | 7 | 8 | 35 | 93 |
| | | 9 | 9 | 5 | 9 | 32 | |
| | | 6 | 8 | 6 | 6 | 26 | |
| James Clough .............. | 133 | 4 | 9 | 4 | 2 | 19 | 62 |
| | | 8 | 9 | 4 | 2 | 23 | |
| | | 5 | 5 | 6 | 4 | 20 | |
| F. C. Curtis................. | 134 | 8 | 9 | 8 | 10 | 34 | 95 |
| | | 8 | 8 | 7 | 9 | 32 | |
| | | 6 | 9 | 6 | 8 | 29 | |
| J. Carpenter................ | 135 | 8 | 8 | 6 | 8 | 30 | 76 |
| | | 6 | 5 | 6 | 8 | 25 | |
| | | 3 | 9 | 3 | 6 | 21 | |
| F. O. Crossfield............. | 131 | 7 | 8 | 6 | 8 | 29 | 79 |
| | | 7 | 8 | 4 | 4 | 23 | |
| | | 8 | 9 | 6 | 4 | 27 | |
| W. M. Marshall............. | 600 | 7 | 8 | 7 | 4 | 26 | 75 |
| | | 5 | 6 | 5 | 5 | 21 | |
| | | 8 | 9 | 8 | 3 | 28 | |

**TABLE** *showing the entries for the first and second prize of* $15 *in gold, offered by Tivy & Purcell, and the award of the judges on a scale of* 40.

| | No. of Pkg. | Flavor. | Salt. | Grain. | Color. | Total. | Grand total. | |
|---|---|---|---|---|---|---|---|---|
| D. Whitehead | 126 | 6 | 10 | 5 | 3 | 24 | | |
| | | 8 | 10 | 5 | 4 | 27 | 78 | |
| | | 8 | 10 | 5 | 4 | 27 | | |
| D. Whitehead | 126 | 5 | 10 | 6 | 6 | 27 | | |
| | | 3 | 7 | 5 | 8 | 23 | 76 | |
| | | 8 | 8 | 6 | 9 | 26 | | 154 |
| M. C. Jones | 127 | 7 | 5 | 7 | 6 | 25 | | |
| | | 6 | 9 | 7 | 6 | 28 | 83 | |
| | | 7 | 10 | 7 | 6 | 30 | | |
| M. C. Jones | 127 | 7 | 5 | 6 | 7 | 25 | | |
| | | 8 | 9 | 5 | 4 | 26 | 84 | |
| | | 9 | 9 | 8 | 7 | 33 | | 167 |
| Milo Jones | 128 | 8 | 9 | 7 | 4 | 28 | | |
| | | 5 | 10 | 4 | 3 | 22 | 74 | |
| | | 8 | 5 | 6 | 5 | 24 | | |
| Milo Jones | 128 | 8 | 5 | 6 | 4 | 23 | | |
| | | 7 | 8 | 5 | 2 | 22 | 72 | |
| | | 8 | 9 | 5 | 5 | 27 | | 146 |
| E. King | 129 | 7 | 6 | 5 | 4 | 22 | | |
| | | 9 | 10 | 6 | 3 | 28 | 68 | |
| | | 6 | 5 | 4 | 3 | 18 | | |
| E. King | 129 | 6 | 5 | 4 | 3 | 18 | | |
| | | 8 | 8 | 7 | 6 | 29 | 67 | |
| | | 6 | 7 | 4 | 3 | 20 | | 135 |
| J. Porter | 400 | 9 | 6 | 6 | 5 | 26 | | |
| | | 10 | 10 | 9 | 8 | 3 | 90 | |
| | | 6 | 6 | 8 | 7 | 27 | | |
| J. Porter | 400 | 6 | 6 | 8 | 7 | 27 | | |
| | | 10 | 10 | 8 | 7 | 35 | 86 | |
| | | 7 | 6 | 6 | 5 | 24 | | 176 |
| C. R. Beach | 480 | 8 | 10 | 8 | 6 | 32 | | |
| | | 7 | 10 | 8 | 5 | 30 | 82 | |
| | | 8 | 2 | 5 | 5 | 20 | | |
| C. R. Beach | 480 | 7 | 2 | 5 | 6 | 20 | | |
| | | 10 | 10 | 9 | 8 | 37 | 84 | |
| | | 7 | 8 | 6 | 6 | 27 | | 166 |
| M. Marshall | 502 | 6 | 10 | 6 | 9 | 31 | | |
| | | 5 | 9 | 6 | 9 | 29 | 88 | |
| | | 9 | 9 | 6 | 4 | 28 | | |
| M. Marshall | 502 | 9 | 8 | 6 | 5 | 28 | | |
| | | 7 | 9 | 8 | 6 | 30 | 88 | |
| | | 7 | 8 | 8 | 7 | 30 | | 176 |

TABLE *showing the entries for the Howe Union Scales, and the award of the judges on a scale of* 40.

| | No. of Pkg. | | Salt. | Grain. | Color. | Total. | Grand Total. |
|---|---|---|---|---|---|---|---|
| O. C. Olin | 130 | 7 | 6 | 6 | 7 | 26 | .... |
| | | 7 | 9 | 8 | 6 | 30 | .... |
| | | 9 | 10 | 10 | 6 | 35 | .... |
| | | | | | | | 91 |
| F. O. Crossfield | 132 | 7 | 9 | 9 | 8 | 33 | .... |
| | | 8 | 9 | 10 | 7 | 34 | .... |
| | | 8 | 8 | 7 | 8 | 31 | .... |
| | | | | | | | 98 |
| C. P. Goodrich | 133 | 7 | 10 | 9 | 6 | 32 | .... |
| | | 8 | 9 | 7 | 9 | 33 | .... |
| | | 7 | 5 | 6 | 9 | 27 | ... |
| | | | | | | | 92 |
| J. Cower | 134 | 8 | 5 | 8 | 10 | 31 | .... |
| | | 6 | 10 | 3 | 8 | 27 | ... |
| | | 10 | 10 | 10 | 10 | 40 | ... |
| | | | | | | | 98 |
| B. Benson | 135 | 8 | 8 | 9 | 9 | 34 | .... |
| | | 5 | 6 | 8 | 8 | 27 | .... |
| | | 7 | 5 | 7 | 8 | 27 | .. |
| | | | | | | | 88 |
| Starin | 136 | 8 | 9 | 8 | 8 | 33 | .... |
| | | 8 | 7 | 8 | 9 | 32 | .... |
| | | 9 | 9 | 8 | 9 | 35 | ... |
| | | | | | | | 100 |
| James Clough | 137 | 6 | 7 | 5 | 7 | 25 | .... |
| | | 6 | 8 | 4 | 6 | 24 | .... |
| | | 7 | 7 | 5 | 6 | 25 | .... |
| | | | | | | | 74 |
| F. C. Carter | 140 | 6 | 6 | 8 | 6 | 26 | .... |
| | | 8 | 7 | 8 | 9 | 32 | .... |
| | | 8 | 7 | 8 | 8 | 31 | .... |
| | | | | | | | 89 |
| H. Merriman | 200 | 9 | 8 | 9 | 9 | 35 | .... |
| | | 7 | 8 | 9 | 9 | 33 | .... |
| | | 8 | 8 | 8 | 8 | 32 | .... |
| | | | | | | | 100 |
| D. Whitehead | 125 | 8 | 5 | 8 | 8 | 29 | .... |
| | | 9 | 10 | 9 | 7 | 35 | .... |
| | | 9 | 10 | 9 | 9 | 37 | .... |
| | | | | | | | 101 |

## REPORT OF JUDGES ON CHEESE.

Your committee who were appointed to the not very pleasant task of judging the cheese placed upon exhibition for the several prizes, have done so, samples being brought to us in a room separate from the exhibits, and the owner's name withheld until the awards were made.

A. H. Wheaton, of Auroraville, wins the silver cup.

The following letter came with the cup:

NEW YORK, January 5, 1878.

D. W. CURTIS, Esq., *Secretary Wisconsin Dairymen's Association*,
Fort Atkinson, Wisconsin:

DEAR SIR: —We forward you this day, per American Express, the silver cup offered by us as a prize for the manufacture of the finest factory cheese, and to be awarded through your association as per our advices of March 15th. Allow us to suggest that the same be placed, after the award, by the party receiving it, in some place where it will be preserved from injury, and where it will be under the supervision of the officers of your association.

Very respectfully, Yours etc,,
GEO. S. HART & HOWELL.

Wm. Stowe, of Whitewater, wins the $25.00 offered by Messrs. Leggett, of New York. In sending the money, they write the following letter:

NEW YORK, Jan. 2, 1878.

D. W. CURTIS, *Sec'y Wis. Dairymen's Association:*

DEAR SIR: Enclosed find our check for $25.00, prize offered on cheese. Only wish your state to go on improving the make, and trust next season will develop more factories that will give perfection in make, quality, and flavor.

We are, yours truly.
A. W. & F. W. LEGGETT.

Robert Smith, cheese maker for Olin, Crossfield & Co., Fort Atkinson, wins the 600-pound Howe scales, offered by A. M. Gilbert & Co., Chicago,

If time would permit, your committe, would be glad to tell why they consider the cheese winning the prizes the best.

HIRAM SMITH, Sheboygan Falls.
J. H. REED, New York.
J. L. HURD, Watertown.
*Committee.*

TABLE *showing the entries for the Silver Cup, and the award of one of the judges only, on a scale of 24.**

| | No. of Package. | Flavor. | Quality. | Texture. | Color. | Total. |
|---|---|---|---|---|---|---|
| Charles Parker | 107 | 5 | 6 | 2 | 1 | 14 |
| A. H. Wheaton | 108 | 8 | 8 | 4 | 3 | 23 |
| J. G. Picket | 111 | 6 | 8 | 3 | 3 | 20 |
| C. Hazen | 600 | 7 | 8 | 4 | 3 | 22 |
| W. Gulloway | 102 | 7 | 7 | 4 | 3 | 21 |

TABLE *showing the entries for the Legget prize and the award of one of the judges on a scale of 24.*

| | No. of Package. | Flavor. | Quality. | Texture. | Color. | Total. |
|---|---|---|---|---|---|---|
| Geo. Kemp | 100 | 5 | 6 | 1 | 2 | 14 |
| W. Galloway | 101 | 6 | 8 | 3 | 3 | 20 |
| Cold Spring Cheese Co | 105 | 7 | 8 | 3 | 3 | 21 |
| Cold Spring Cheese Co | 106 | 7 | 7 | 3 | 3 | 20 |
| Wm. Stowe | 109 | 7 | 8 | 4 | 3 | 22 |
| C. Hazen | 113 | 7 | 7 | 4 | 3 | 21 |

TABLE *showing the entries for the Howe scale prize, and the award of one of the judges on a scale of 24.*

| | No of Package. | Flavor. | Quality. | Texture. | Color. | Total. |
|---|---|---|---|---|---|---|
| Olin, Crossfield & Co | 103 | 8 | 7 | 4 | 3 | 22 |
| J. F. Marshall | 104 | 6 | 6 | 3 | 3 | 18 |
| Milford Factory | 110 | 6 | 6 | 3 | 3 | 18 |
| J. G. Picket | 112 | 7 | 6 | 3 | 3 | 19 |
| C. Hazen | 330 | 7 | 6 | 3 | 3 | 19 |

The butter and cheese were in charge of J. B. Vansburgh, of Genoa Junction, who was very efficient in attending to that department, evincing strict impartiality and due courtesy to all.

* Reports of the other judges were mislaid.

NOTE. — The judges adopted the following: Flavor, 8; Quality, 8; Texture, 5; Color, 3; Perfection, 24 — scale.

## REPORT OF THE COMMITTEE ON DAIRY GOODS AND MANUFACTURES.

Your committee would report that we have examined the model of cheese vat made by Thomas Brown of Ft. Atkinson. We find it well and substantially made, and in every particular well calculated for the purpose for which it is designed, with a slight alteration in the construction of the pipes for the diffusion of steam. We find on exhibition three styles of milk vats, known as Hyde's Milk Cooler; Brown's Milk Pan and Cooler, and each of which have points of real excellence of principle, are well constructed and will doubtless recommend themselves to general use as soon as they have had a fair trial. We can not, from want of experience in using articles, give preference to either.

The portable creamary, the principle of submerging milk under water, is to us an entirely radical departure from old and long established theories. The exhibition of its workings by those having the apparatus in charge was to us satisfactory, and we hope dairymen will give the principle a fair trial.

*Butter Workers.*—We find two on exhibition, one by Cornish & Curtis of Fort Atkinson, and the Walker Butter-worker.

The lever worker we are well acquainted with and can personally recommend it to general use. The other, having the roller principle, we are not personally acquainted with but have to-day witnessed its workings, which, together with the recommendations of those who have used the article, prompts us to recommend it to dairymen for trial, and hope to hear favorably from it at our next meeting.

Thomas Brown, of Ft. Atkinson, exhibits a cheese-vat, milk can, cheese-hoop and press screw. We have to compliment Mr. Brown upon his very fine display, every article of which is of good workmanship, and manufactured from the best material.

Cornish & Curtis, of Fort Atkinson, exhibit their Rectangular Churn, which is too long and favorably known to need any commendation by us.

We close this brief report by noting the great improvement which is yearly made in all the implements, machinery and fixtures connected with the manufacture of butter and cheese. No branch of industry is more favored by the inventive genius of our country in bringing to our use the great helps which go so far to lighten labor, and make more perfect the product of the dairy.

Submitted by,

J. G. PICKETT, Pickett Station,
CHESTER HAZEN, Ladoga,
J. B. INGERSOL, Port Washington,
*Committee.*

President De Land: We will now adjourn to the parlors of the Congregational Church, where we are to receive a dairy banquet and sociable, and it is expected that every dairyman will attend.

## *Evening Session.*

Two hundred and fifty sat down to the elegant supper given by the ladies of the Congregational Church, and short speeches were made in response to toasts, by Hon. T. D. Weeks, H. F. Dousman, W. D. Hoard, Francis D. Moulton, G. W. Peck, Hiram Smith, and others.

This meeting has been the largest and best ever held by the association, and the banquet and sociable a success in every particlar.

# APPENDIX.

## PREMIUMS AWARDED AT THE STATE FAIR FOR 1877.

### BUTTER AND CHEESE.

#### "Products of the Dairy" — Butter, Farm-made.

| | |
|---|---|
| Best 20 pounds made in June, Mrs. Thos. Little, Janesville | $15 00 |
| Second, Mrs. E. W. Fisher, Orfordsville | 10 00 |
| Third, C. P. Goodrich, Fort Atkinson | 5 00 |
| Best 20 pounds made at any other time, C. P. Goodrich, Ft. Atkinson. | 15 00 |
| Second, Mrs. E. L. Walch, Milburn | 10 00 |
| Third, A. H. Downing, Fort Atkinson | 5 00 |

#### Butter Creamery.

| | |
|---|---|
| Best 20 pounds made in June, James Clough, Edgerton | 15 00 |
| Second, C. P. Goodrich, Fort Atkinson | 10 00 |
| Best 20 pounds made at any other time, James Clough, Edgerton | 15 00 |
| Second, C. P. Goodrich, Fort Atkinson | 10 00 |
| Third, O. E. Merrill | 5 00 |

#### Cheese.

| | |
|---|---|
| Best 2 cheese made in June, L. Littlefield, Plymouth | 15 00 |
| Second, Charles Gibson, Lind | 10 00 |
| Third, Chester Hazen, Ladoga | 5 00 |
| Best 2 cheese made in August, Hiram Conover, Plymouth | 15 00 |
| Second, W. S. Hoxie, Cooksville | 10 00 |
| Third, L. Littlefield, Plymouth | 5 00 |

#### Private Dairy.

| | |
|---|---|
| Best 2 cheese made at any time, Simon Antisdel, Afton | 15 00 |

# BREWING CHEESE.

BY GEORGE WASHINGTON PECK, OF *Peck's Sun*, MILWAUKEE.

**Read at the Dairy Banquet.**

FELLOW CREAM-ATIONISTS: In calling upon me on this occasion to enlighten you upon a subject that is dear to the hearts of all Americans, you have got the right man in the right place. It makes me proud to come to my old home and unfold truths that have been folded ever since I can remember. It may be said by scoffers, and it has been said to day, in my presence, I didn't know enough to even milk a cow. I deny the allegation, and show me the alligator. If any gentleman present has got a cow here with him, and I can borrow a clothes wringer, I will show you whether I can milk a cow or not. Or if there is a cheese mine here handy, I will demonstrate that I can—*runnet.*

I was brought up on a farm. That is, I come up with the cows. Labor has been to me a sweet boon. There is no farmer present here that has done more real hard sitting around than I have. It was my practice in youth to sit on the fence and see the hired men work. There is no more ennobling occupation than swinging the reaping machine or holding the plow. I never held a plow much because the one we had was gentle. It would stand without being held.

The brewing of cheese and butter have been among the earliest industries. Away back in the history of the world, we find Adam and Eve conveying their milk from the garden of Eden, in a one-horse wagon to the old cold spring cheese factory, to be weighed in the balance. Whatever may be said of Adam and Eve to their discredit in the marketing of the products of their orchard, it has never been charged that they stopped at the pump and put water in their milk cans. Doubtless you all remember how Cain killed his brother Abel because Abel would not let him do the churning. Even then boys quarreled about doing the family churning. They all wanted to do it. We can picture Cain and Abel driving mooley cows up to the house from the pasture in the southeast corner of the garden and Adam standing at the bars with a tin pail and a three-legged milk-stool, smoking a meerschaum pipe, and singing "Hold the Fort for I am Coming Through the Rye," while

Eve sat on the veranda with a sewing machine, altering over her last year's polonaise, and winking at the devil who stood behind the milk house singing, "I want to be an Angel." After Adam got through milking, he came up and he saw Eve blushing and he said, "Madam, cheese it," and she chose it.

But to come down to the present day, we find that cheese has become one of the most important branches of manufacture. It is next in importance to the silver interest. And, fellow cheese makers, you are doing yourselves great injustice that you do not petition congress to pass a bill to remonetize cheese. Cheese was demonetized when congress passed an act providing that the moon was not made of green cheese. There is more cheese raised in this country than there is silver, and it is more valuable. Suppose you had not eaten a mouthful in thirty days, and you should have placed on the table before you ten dollars stamped out of silver bullion on one plate, and nine dollars stamped out of cheese bullion on another plate; which would you take first? Though the face value of the nine cheese dollars would be ten per cent. below the face value of the ten silver dollars, you would take the chances on the cheese. You would use it to better advantage in your business. Hence, I say cheese is more valuable than silver, and it should be made legal tender for all debts, public and private, except pew rent. I may be in advance of other eminent financiers, who have studied the currency question, but I want to see the time come, and I trust the day is not far distant when 412½ grains of cheese shall be equal to a dollar in codfish, and when the merry jingle of slices of cheese shall be heard in every pocket.

Then every cheese factory can make its own coin, money will be plenty, everybody will be happy, and there never will be war any more. It may be asked, how this currency can be redeemed? I would have an incontrovertible bond, made of Limburger cheese, which is stronger and more durable. When this is done, you can tell the rich man from the poor man by the smell of his money. Now-a-days many of us do not even get a smell of money, but in the good days which are coming, the gentle zephyr will waft to us the delicate violet and the able bodied Limburger, and we shall know that money is plenty.

The manufacture of cheese is a business that a poor man can engage in as well as a rich man. I say it without fear of successful contradiction, and say it boldly, that a poor man with, say two hundred cows, if he thoroughly understands his business, can market more cheese than a rich man who owns three hundred oxen. This is susceptible of demonstration. If my boy showed a desire to become a statesman, I would say to him, "young man, get married, buy a mooley cow, and go to Sheboygan county and start a cheese factory."

Speaking of cows, did it ever occur to you, gentlemen, what a saving it would be to you if you should adopt mooley cows instead of horned cattle? What good do horns do in making cheese. It takes at least three tons of hay and a large quantity of ground feed annually, to keep a pair of horns fat, and of what earthly use are they? Statistics show that there are annually killed forty-five thousand grangers by cattle with horns. You pass laws to muzzle dogs because one in ten thousand goes mad, and yet more people are killed by cattle horns than by dogs. What the country needs is more mooley cows. Now that I am on the subject, it may be asked what is the best breed for the dairy. My opinion is divided between the southdown and cochin-china. Some like one best and some like the other, but as for me, "give me liberty or give me death."

There are many reforms that should be inaugurated in the manufacture of cheese. Why should cheese be made round? I am inclined to the belief that the making of cheese round is a superstition. Who had not rather buy a good square piece of cheese than a wedge-shaped chunk, all rind at one end and as thin as a congressman's excuse for voting back pay at the other? Make your cheese square, and the consumer will rise up and call you another.

Another reform that might be inaugurated would be to veneer the cheese with building paper, or clapboard, instead of the time-honored piece of towel. I never saw a cheese cut that I didn't think that the cloth around it had seen service as a bandage on some other patient. But I may have been wrong. Another thing that does not seem to be right is to see so many holes in a cheese. It seems to me that a solid cheese, one made by one of the old masters, with no holes in it, would weigh more. I don't wish to accuse you of cheating, but don't you feel a little ashamed when you see a cheese cut, and the holes are the biggest part of it? The little cells may be handy for the skipper, but the consumer feels the fraud in his inmost soul. Among the improvements made in the manufacture of cheese, I must not forget that, of late years, the cheese does not resemble a grindstone as much as it did years ago. The time has been when, if the farmer could not find his grindstone, all he had to do was to mortice a hole in the middle of a cheese, and turn it and grind his scythe. Before the invention of nitro-glycerine, it was a good day's work to hew off enough cheese for a meal. Time has worked wonders in cheese.

If I have neglected the subject of butter in these few remarks, it is because my time has been limited. Butter is getting to be an every day occurrence, and it will hold its own if it is given half a chance. With all the improvements in the way of hair invigorators, any person can raise a good head of butter. I beg of you to have nothing to do with this new patent butter. called Ole O. Margarine. From the name it is evidently of Norwegian extraction, and while it may as beautiful in appearance as the original of which it is a counterfeit, statistics show that as a lubricator for buckwheat cakes, it takes rank second to axle grease, and is a delusion and a snare.

In conclusion, let me say, go on in the good work that you have inaugurated. Let the character of your butter and cheese for chastity and purity be beyond comparison, and in time, every cheese maker will be a United States senator, and American cheese will be legal tender the world over.

## MAGNITUDE OF THE DAIRY INTEREST.

**From the Daily Commercial Bulletin, Chicago.**

Our dairy interests have attained proportions to worthily place them among the leading productions of the West, and rank in financial magnitude close on the heels of our heretofore acknowledged staple articles — grain, provisions, and lumber. The capital invested is enormous, and the yearly proceeds from the manufacture of butter, cheese, milk, etc., have been variously estimated in the millions.

A recent estimate of the amount of butter and cheese produced placed the amount at 528,360,000 lbs., valued at $124,000,000. Beside this vast production, the amount of milk sold is placed at about 125,000,000 gallons, or one-third of the entire amount of milk produced.

## INCREASED FIELD OF PRODUCTION.

The increase in these productions has been very rapid, and shows prospects of further advancement with the passing of each year. Our fertile fields and pastures afford ample opportunity for a still greater production, with these interests already extending to the far Western wilds. Probably no other section of the United States affords better opportunities and facilities for the manufacturing of butter and cheese at the smallest expense than do our Western States. The climate, unlimited prairie lands, invariably supplied with abundance of grass and water, interspersed with sections of timber land, all being beneficial to an extensive production. In fact, the West is destined in years to become the great butter and cheese producing portion of the United States.

## EXPORT MOVEMENT.

One of the really noticeable features of the trade this season has been the urgent European demand for choice butter, which has really exceeded the expectations of the most sanguine dealer. The European marts have evidently been well supplied with common stock, and exporters manifested a disposition to enter upon a new field of enterprise — that is, more extensive shipments of fine western butter. In this they were greatly aided by the systematic method of handling butter in the west, and facilities offered for transportation. Lines of refrigerator cars, connecting with ocean steamers fitted up with refrigerator compartments, have greatly facilitated the trade and proved of great benefit to our western merchants and manufacterers. Until recently the shipment of fine butter generally arrived at foreign points more or less out of condition, but the later experiments have placed consignments in European markets in about the same condition as when forwarded from here; the quality being well preserved, besides retaining original freshness and sweetness. The extra expense of shipping by these refrigerator steamers is so trifling that exporters eagerly avail themselves of the opportunity offered, and the amount forwarded since the trial shipments proved so successful has been exceedingly large. The following table exhibits the exports from New York for seven years, and the present year to date:

| *Year.* | *Pounds.* |
|---|---|
| 1870 | 2,079,751 |
| 1871 | 8,568,012 |
| 1872 | 5,044,227 |
| 1873 | 4,074,657 |
| 1874 | 5,832,806 |
| 1875 | 5,292,571 |
| 1876 | 13,827,813 |
| 1877 (to Aug. 17) | 11,726,666 |

### IMPORTS OF BUTTER AT LIVERPOOL.

The imports of butter at Liverpool from October 1, 1876 to July 12, 1877, were 243,051 packages, against 140,117 packages for the same time in 1875–6.

### MOVEMENT OF BUTTER AT CHICAGO.

The following table exhibits the receipts and shipments of butter in Chicago for thirteen years, and to date for the year 1877, according to reports given by the secretary of the Board of Trade:

|  | Receipts. | Shipments. |
|---|---|---|
| *Years* | *Pounds.* | *Pounds.* |
| 1864 | 8,819,903 | 5,297,769 |
| 1865 | 7,492,028 | 5,206,865 |
| 1866 | 9,126,825 | 8,503,321 |
| 1867 | 3,816,638 | 2,926,239 |
| 1868 | 5,503,630 | 3,972,021 |
| 1869 | 10,224,503 | 5,898,391 |
| 1870 | 11,682,348 | 6,493,143 |
| 1871 | 13,231,452 | 11,049,367 |
| 1872 | 14,574,777 | 11,497,537 |
| 1873 | 22,283,765 | 12,851,803 |
| 1874 | 28,743,606 | 16,020,190 |
| 1875 | 21,868,991 | 19,249,081 |
| 1876 | 33,941,573 | 34,140,609 |
| 1877, (Aug. 18.) | 23,841,444 | 19,883,181 |

For the regular butter season — May, June, July, and to August 18, 1877, inclusive, the receipts aggregate 15,247,201 pounds, against 11,594,635 pounds the same time 1876 — an increase of 3,652,566 pounds. The shipments for the same period — May to August 18, inclusive — aggregated 13,416,071 pounds, against 11,578,285 pounds for the corresponding time last year — an increase of 1,837,786 pounds.

## EXPORTS OF BUTTER AND CHEESE.

The following table exhibits the monthly exports of butter and cheese from the United States from May, 1875, to November, 1877, inclusive, as obtained from the Hon. Edward Young, Chief of the Bureau of Statistics, Washington:

| | BUTTER. | | CHEESE. | |
|---|---|---|---|---|
| | Pounds. | Value. | Pounds. | Value. |
| 1875. | | | | |
| May | 447,219 | $94,923 | 6,347,182 | $849,288 |
| June | 229,303 | 56,389 | 15,711,330 | 2,003,995 |
| Total | 676,522 | $151,312 | 22,058,512 | $2,853,283 |
| 1875. | | | | |
| July | 352,994 | $73,267 | 23,297,790 | $2,916,729 |
| August | 244,342 | 56,400 | 15,971,541 | 1,990,991 |
| September | 468,482 | 111,618 | 10,416,706 | 1,274,566 |
| October | 958,040 | 228,495 | 8,813,909 | 1,128,674 |
| November | 377,706 | 99,366 | 3,182,194 | 435,842 |
| December | 406,170 | 100,722 | 2,710,028 | 367,818 |
| 1876. | | | | |
| January | 258,189 | 64,551 | 4,097,185 | 522,789 |
| February | 268,109 | 63,586 | 3,911,852 | 541,787 |
| March | 273,876 | 69,471 | 6,079,992 | 793,925 |
| April | 137,683 | 37,984 | 3,816,903 | 468,925 |
| May | 246,095 | 60,025 | 3,616,042 | 450,464 |
| June | 653,403 | 144,016 | 11,942,092 | 1,377,573 |
| Total fiscal year | 4,644,894 | $1,109,496 | 97,676,264 | $12,270,083 |
| 1876. | | | | |
| July | 715,311 | $140,597 | 20,120,541 | $2,175,236 |
| August | 2,210,761 | 406,754 | 16,622,429 | 1,760,390 |
| September | 4,672,861 | 965,855 | 13,975,589 | 1,649,096 |
| October | 2,108,525 | 485,130 | 4,655,994 | 620,131 |
| November | 1,263,550 | 285,416 | 6,677,081 | 866,224 |
| December | 1,029,282 | 232,927 | 4,664,046 | 590,638 |
| 1877. | | | | |
| January | 993,038 | 222,707 | 3,539,780 | 472,534 |
| February | 1,605,581 | 355,144 | 3,886,854 | 561,288 |
| March | 2,380,922 | 507,609 | 2,048,001 | 287,102 |
| April | 1,424,066 | 261,212 | 1,250,384 | 162,845 |
| May | 977,337 | 174,338 | 8,219,745 | 1,084,621 |
| June | 2,145,836 | 386,897 | 21,704,242 | 2,470,617 |
| Total fiscal year | 21,527,070 | $4,424,616 | 107,364,686 | $12,700,722 |
| 1877. | | | | |
| July | 2,790,344 | $540,174 | 19,657,235 | $2,097,458 |
| August | 2,379,357 | 460,406 | 17,407,355 | 1,945,728 |
| September | 4,467,633 | 868,197 | 12,995,499 | 1,709,471 |
| October | 2,179,264 | 417,325 | 7,171,007 | 907,338 |
| November | 1,002,627 | 180,893 | 6,531,594 | 817,932 |

### EXPORT OF BUTTER AND CHEESE.

As compiled from official figures of the Bureau of Statistics, Treasury Department, Washington:

| Year. | Butter. |  | Year. | Cheese. |  |
|---|---|---|---|---|---|
|  | Pounds. | Value. |  | Pounds. | Value. |
| 1790... | ............. | $48,587 | 1790. | 144,734 | ........... |
| 1820... | 1,068,024 | ............. | 1820.. | 766,431 | $190,287 |
| 1830... | 899,396 | ......... | 1830.. | 688,241 | 142,370 |
| 1840... | 1,177,639 | ............. | 1840.. | 723,217 | 210,749 |
| 1850... | 3,886,175 | ............. | 1850.. | 13,020.817 | 1,215,463 |
| 1858... | 3,082,117 | 541,863 | 1858. | 8,098.527 | 731,910 |
| 1859... | 4,572,065 | 750,911 | 1859.. | 7,103,312 | 649,302 |
| 1860... | 7,640,914 | 1,144,321 | 1860.. | 15.515,799 | 1,565,630 |
| 1861... | 15,553.381 | 2,355.985 | 1861.. | 32,361,428 | 3,321.631 |
| 1862... | 26,691,247 | 4,164.344 | 1862.. | 34,052,687 | 2.715,892 |
| 1863... | 35,172,415 | 6,733,743 | 1863.. | 42,045,054 | 4,216,804 |
| 1864... | 20,895,435 | 6,140,031 | 1864.. | 47,751,329 | 5,638,007 |
| 1865... | 21,388,185 | 7,234,173 | 1865.. | 53,089,468 | 11,684,927 |
| 1866... | 3,806,835 | 1,267,855 | 1866.. | 36,411,885 | 6,036,828 |
| 1867... | 4,912,355 | 1,184,367 | 1867.. | 52,352,127 | 7,898,535 |
| 1868... | 2,071,873 | 582,745 | 1868.. | 51,097,203 | 7,010,424 |
| 1869... | 1,324,332 | 484,094 | 1869.. | 39,960.367 | 6,437,866 |
| 1870... | 2,019,288 | 592,229 | 1870.. | 57,296,327 | 8,881,934 |
| 1871... | 3,965,043 | 853,096 | 1871.. | 63,698,867 | 8,752,990 |
| 1872... | 7,746,261 | 1,498,812 | 1872.. | 66,204,025 | 7,752,918 |
| 1873... | 4,518,844 | 952,919 | 1873.. | 80,366,540 | 10,498,010 |
| 1874... | 4,367,983 | 1,092,381 | 1874.. | 90,611,077 | 11,898,995 |
| 1875... | 6,360,827 | 1,506,996 | 1875.. | 101,010,853 | 13,659,603 |
| 1876... | 4,644,894 | 1,109,496 | 1876.. | 97,676,264 | 12,270,083 |
| 1877... | 21,527,242 | 4,424,616 | 1877.. | 107,364,666 | 12,700,627 |

## BUTTER AND CHEESE MADE IN WISCONSIN.

*During the year* 1870, *as taken from the census report, also the amount made in* 1876 *and* 1877.

|  | 1870. | 1876. | 1877. |
|---|---|---|---|
|  | *lbs.* | *lbs.* | *lbs.* |
| Butter.......................... | 22,473,036 | 50,130,000 | 62,662,500 |
| Cheese.......................... | 1,591,798 | 17,000,000 | 21,250,000 |

From carefully prepared statistics made by W. D. Hoard, of the Jefferson County Union, Hon. Hiram Smith, H. F. Dousman and others, the above estimates have been made.

# DAIRY STATISTICS

## OF CHEESE FACTORIES, CREAMERIES AND PRIVATE DAIRIES IN THE STATE AS FAR AS COULD BE ASCERTAINED, FOR THE YEAR ENDING DECEMBER 31, 1877.

| Counties and Name of Factory or Proprietor. | P. O. Address. | Number of Pounds. | | | | | | No. Cows to each factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory Make. | Cheese, Private Dairy. | Cheese, Limberger | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| **BUFFALO.*** | | | | | | | | |
| William Fisher | Mondovia | 18,000 | 200 | | | | | |
| T. W. Bailey | Gilmanton | | 2,000 | | | | | |
| A. Mosher | Gilmanton | | | 2,000 | | | | |
| **CALUMET.** | | | | | | | | |
| C. P. Skidmore | Stockbridge | 20,600 | | | | | 800 | |
| M. S. W. Scott | Brant | 9,000 | | | | | | |
| O. R. Potter | Potters Mills | 8,000 | | | | | | |
| Wirtz Cheese Company | Hilbert | 9,000 | | | | | | |
| Platt Cheese Company | Hilbert | 17,800 | | | | | | |
| **COLUMBIA.** | | | | | | | | |
| Arlington Cheese Association | Dixon | 50,000 | | | | | | 175 |
| Wyocena Cheese Association | Wyocena | 57,018 | | | | | | 150 |
| Lodi Cheese Association | Lodi | 99,113 | | | | | | 350 |
| West Point Cheese Associat'n | West Point | 55,102 | | | | | | 200 |
| Chas. Baker Cheese Associat'n | Portage | | | | | | | |
| O. B. Prime & Co | Fall River | 116,025 | | | | | | |
| Caledonia Cheese Company | Portage | | | | | | | 200 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| A. Chapman | Columbus | 61,514 | | | | | | |
| Poynette Cheese Factory | Poynette | | | | | | | 200 |
| H. M. Chapman's Creamery | | | | | | | | 100 |
| J. Whiting† | Port Hope | 6,000 | | | | | | 40 |
| Randolph Cheese Factory | Randolph | | | | | | | |
| CLARK. | | | | | | | | |
| G. & J. Heuntzicher, Factory | Greenwood | | | | | | | |
| DANE. | | | | | | | | |
| C. C. Pease | Bellville | 50,684 | | | | | | 220 |
| Wm. Fischer | Paoli | 22,000 | | | | | | 75 |
| Humphrey & Sherwin | Mazomanie | 69,550 | | | | | | 220 |
| Black Earth Cheese Factory | Black Earth | 58,249 | | | | | | 200 |
| Dane do | Dane | 87,241 | | | | | | 250 |
| A. S. Noyes' do | Waunakee | | | | | | | |
| W. J. Donald do | Mt. Vernon | | | | | | | |
| Brooklyn do | Brooklyn | | | | | | | |
| Fischer's Swiss‡ do | Mt. Vernon | | | | | | | |
| Limberger‡ do | Primrose | | | | | | | |
| John Arians do | North Bristol | | | | | | | |
| A. Chipman do | Sun Prairie | | | | | | | |
| E. P. Sherman do | Windsor | | | | | | | |
| T. K. Potter & Co. do | Cambridge | 59,050 | | | | | | 200 |
| DODGE. | | | | | | | | |
| Stapleton Cheese Co. | Fox Lake | 18,000 | | | | | | 120 |
| R. F. Ellis | Beaver Dam | 32,000 | | | | | | 150 |
| Cochrane Cheese Co. | Beaver Dam | 100,000 | | | | | | 400 |
| F. S. Jacobs | Atwater | 75,000 | | | | | | 375 |
| Wm. B. McDonald | Lowell | 11,570 | | | | | | 150 |

* 30,000 lbs. butter marketed at Mondovia; 75,000 lbs. made in the county. † Run only four months. ‡ New.

## *Dairy Statistics* — continued.

| COUNTIES AND NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | Number cows to each factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory, Make. | Cheese, Private Dairy. | Cheese, Limberger. | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| DODGE — *continued.* | | | | | | | | |
| G. R. Talbot | Juneau | 90,000 | | | | | | 450 |
| G. R. Talbot | Rolling Prairie | 40,000 | | | | | | 175 |
| G. R Talbot‡ | Clyman | | | | | | | 250 |
| John Hoffman | Hustisford | | | 55,000 | | | | 150 |
| B. Boss | Hustisford | | | 48,000 | | | | 135 |
| H. Brue | Hustisford | | | 60,000 | | | | 160 |
| Mr. von Grüningen | Hustisford | | | 50,000 | | | | 140 |
| E. von Grüningen | Hustisford | | | 55,000 | | | | 145 |
| J. Graniger | Hustisford | | | 40,000 | | | | 100 |
| A. Graniger | Hustisford | | | 45,000 | | | | 130 |
| C. Wellow (3 factories) | Hustisford | | | 120,000 | | | | 330 |
| J. Seelgldurey | Hustisford | | | 12,000 | | | | 40 |
| —— Chrunkny | Hustisford | | | 25,000 | | | | 90 |
| S. Boss | Watertown | | | 45,000 | | | | 130 |
| Jacob Joss | Woodland | | | | 28,000 | | | 95 |
| J. Ealing | Woodland | | | 27,000 | | | | 95 |
| M. S. Barrett's Factory | Burnett | | | | | | | |
| FOND DU LAC.* | | | | | | | | |
| C. Hazen | Ladoga | 145,631 | | | | | | 500 |
| C. Hazen, Brandon Factory | Ladoga | 38,000 | | | | | 2,000 | 180 |
| E. S. Jenkins' Factory | Rosendale | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| E. Peebles | Peebles | 88,650 | | | | | 600 | 240 |
| D. D. Treleven | Byron | 60,000 | | | | | | 220 |
| Wm. Berry | Peebles | 40,000 | | | | | | 160 |
| Fayette Bude | Oakfield | | | | | | | |
| M. Wookey | Oakfield | | | | | | | |
| Willis Lang | Waupun | 72,000 | | | | | | |
| Howard Cheese Co | Waupun | 58,000 | | | | | | |
| Williams Cheese Co | Waupun | | | | | | | |
| Bradley's Cheese Co | Waupun | | | | | | | |
| Stapleton's Cheese Co | Waupun | | | | | | | |
| † Ripon Factory | Ripon | 15,000 | | | | | | 50 |
| J. H. Downing | Waupun | 20,000 | | | | | | 75 |
| J. Cronks | Waupun | 33,000 | | | | | | 125 |
| O. B. Bennett | Lamertine | 139,889 | | | | | | 375 |
| O. G. Parker | North Byron | 53,000 | | | | | | 175 |
| Fountain City, Wm. Berg | Peebles | 80,000 | | | | | | 250 |
| Ira Brown | New Cassel | 38,000 | | | | | | 175 |
| Bristol & Orvis | Oakfield | 36,000 | | | | | | 125 |
| L. F. Beedee | Oakfield | | | | | | 10,000 | 35 |
| Simon Arthur | Fond du Lac | | | | | | 14,000 | 45 |
| GRANT. | | | | | | | | |
| A. E. Morse | Bloomington | | 8,240* | | | | 350 | 17 |
| Delos Abrahams | Bloomington | | | | | | 4,000 | 23 |
| ‡ Morse & Welch Factory | Bloomington | | | | | | | 200 |

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* Four new factories are being put up in this county, with a probable average of 200 cows each.

† 1900 cows in cheese factories.

‡ New factory

## *Dairy Statistics* — continued.

| NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS OF CHEESE. | | | | Butter, lbs. | No. Cows to each Factory. |
|---|---|---|---|---|---|---|---|
| | | American. | Limburger. | Swiss. | Swiss and Limburger. | | |
| GREEN. | | | | | | | |
| C. Hazen | Ladoga | 10,000 | | | | | 50 |
| Melvin, Blair & Co. | Brooklyn | 60,000 | | | | | 300 |
| Hoesley & Lenhar | New Glarus | 180,000 | | | | | 600 |
| G. O. Stearns | Monroe | 75,000 | | | | | 250 |
| E. W. Cheesbro | Monroe | 12,000 | | | | | 23 |
| Postville Factory | Stewart | 125,000 | | | | | 450 |
| W. C. Gorham | Monroe | 36,000 | | | | | 100 |
| W. S. Wescott | Monroe | 48,000 | | | | | 125 |
| Dayton Factory | Dayton | 60,000 | | | | | 300 |
| Chris Karlan | Juda and Nevada | 90,748 | | | | | 400 |
| Jack Karlan (4 fac.) | Farmers Grove | | 240,000 | | | | 500 |
| Nic Gerber (7 fac.) | New Glarus | | 400,000 | | | | 1,100 |
| John Boss (2 fac.) | Monroe | | 124,000 | | | | 220 |
| Zumbrunnen & Wittwer (2 fac.) | Monroe | | 143,000 | | | | 450 |
| Miller & Frautschy | Monroe | | 26,500 | | | | 110 |
| Gottleib Wittwer | Monroe | | 50,000 | | | | 260 |
| Jac. Kegetz | Monroe | | 240,000 | | | | 500 |
| Jac. Stauffacher | Monroe | | | 20,000 | | | 90 |
| J. U. Elmer | Monroe | | | 20,000 | | | 90 |
| Anton Stauffacher | Monroe | | | 15,000 | | | 60 |
| John Marty | Monroe | | | 15,000 | | | 60 |
| Fred Neuenscheunder | Monroe | | | 50,000 | | | 150 |
| G. Draschler | Monroe | | | 13,000 | | | 60 |
| Frank Haffner | Monroe | | | 13,000 | | | 60 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Paul Kundert | Monroe | | | 8,000 | | | 30 |
| G. Beller | Monroe | | | 70,000 | | | 180 |
| G. Karlan | Monroe | | | | 8,000 | | 200 |
| Jac. Kundert | Monroe | | | | 27,000 | | 90 |
| Geo. Figi | Monroe | | | | 16,000 | | 60 |
| Weiss & Babler | Monroe | | | | 40,000 | | 250 |
| Norman Cole | Brodhead | | | | | 3,500 | 20 |

## RECAPITULATION.

| | Pounds. | No. Cows. |
|---|---|---|
| American Cheese | 680,748 | 2,538 |
| Limburger | 1,223,500 | 3,140 |
| Swiss | 224,000 | 780 |
| Swiss and Limburger | 163,000 | 500 |
| Grand total | 2,291,248 | 6,958 |

*Dairy Statistics* — continued.

| NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. of cows to each factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory Make. | Cheese, Private Dairy. | Cheese, Limberger | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| **JEFFERSON.** | | | | | | | | |
| Olin, Crossfield & Co | Oakland | | | | | | | 400 |
| Fort Atkinson Factory | do | 155,238 | | | | | | |
| Water Street Factory* | do | | | | | | | |
| Whitney's Factory* | do | | | | | | | |
| Wright's Mill Factory* | do | | | | | | | |
| Cold Spring Cheese Co | Whitewater | | | | | | | |
| Old Cold Spring Factory | do | | | | | | | |
| New Cold Spring Factory | do | | | | | | | |
| Hebron Factory | do | | | | | | | |
| Palmyra Factory | do | | | | | | | |
| Oak Hill Factory | do | | | | | | | |
| M. N. Seward | Harvey | 130,320 | | | | 2,320 | | 425 |
| Seward & Skinner* | Aztalan | | | | | | | 300 |
| Riverside Factory | Jefferson | 47,500 | | | | | | 200 |
| Faville Grove Factory | Lake Mills | 162,624 | | | | | | 450 |
| E. P. Ingalls | Milford | 98,000 | | | | | | 300 |
| Wm. Galloway | Whitewater | 144,992 | | | | | | 413 |
| Thos. Bussey | Busseyville | 105,422 | | | | | | 186 |
| Z. Wilson | Palmyra | 90,000 | | | | | | |
| Concord Cheese Co | Concord | 58,000 | | | | | | 160 |
| C. H. Hosington | Farmington | | | | | | | |
| H. C. Drape | Lake Mills | | | | | | | |
| Merrick's Factory | Whitewater | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| H. A. Hoffman, Creamery * | Jefferson | | | | | | | |
| S. G. Westphall, Creamery | Fort Atkinson | | | | | 5,030 | | 38 |
| H. Merriman, Creamery | Fort Atkinson | | | | | 4,90 | | 20 |
| M. C. Jones, Creamery | Fort Atkinson | | | | | 10,375 | | 50 |
| Rock Lake Creamery | Lake Mills | | | | | 28,262 | | 142 |
| Edmund King, Creamery | Whitewater | | | | | 6,347 | | |
| Star Creamery † | Lake Mills | | | | | 8,245 | | 70 |
| Kroyville Cheese Co * | Kroyville | | | | | | | |
| Union Cheese Co * | Lake Mills | | | | | | | |
| Koshkonong Cheese Co * | Koshkonong | | | | | | | |
| C. H. Phillips | Lake Mills | | | | | 9,000 | | 45 |
| C. S. Cartwright, Cheese Fact.* | Rome | | | | | | | 300 |
| JUNEAU. | | | | | | | | |
| D. Robinson & Co | Mauston | 19,996 | | | | | 1,000 | 86 |
| Wm. Kimbal | Union Center | 17,200 | | | | | 600 | 75 |
| F. O. Galla | Elroy | 17,620 | | | | | 500 | 70 |
| Wm. Hale & Co | Mauston | 19,530 | | | | | 900 | 92 |
| Robert Camp | Mauston | | | | | 2,500 | | 17 |
| F. O. Galla | Elroy | 17,500 | | | | | 600 | 80 |
| John Sharf | Union Center | | | | | | 900 | |
| Andrew Mills | Elroy | | | | | | 600 | |
| I. Fleno | Elroy | | | | | | 500 | |
| Wm. Robinson | Elroy | | | | | | 600 | |
| KENOSHA. | | | | | | | | |
| E. S. Stanard | Woodnorth | 30,500 | | | | | 800 | |
| South Bristol Cheese Factory | Bristol | | | | | | | |
| J. M. Kellogg's Factory | Woodnorth | | | | | | | |
| J. M. Wilbur | Wilmont | 30,000 | | | | | | |
| O. C. Stonebreaker | Bristol | 21,309 | | | | 1,790 | | 75 |
| J. B. Vosburgh | Richmond, Ill | 94,620 | | | | 1,060 | | |

*New factory.

† Received 214,036 lbs. of milk, with proceeds per 100 lbs. milk, 94 cents.

‡ No. lbs. milk for 1 lb. cheese, 9 64-100.

*Dairy Statistics* — continued.

| COUNTIES AND NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. Cows to each Factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory Make. | Cheese, Private Dairy. | Cheese, Limberger | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| **KENOSHA — continued.** | | | | | | | | |
| Maynard & Stevens | Salem | 80,000 | | | | | | |
| Rooth Bros | Salem | 30,000 | | | | 6,000 | | |
| J. M. Kelogg | Woodworth | 40,000 | | | | | | |
| Henry Blackman | Paris | 50,000 | | | | | | |
| C. C. Holt | Kenosha city | 20,000 | | | | | | |
| Simmons & Co | Kenosha city | 80,000 | | | | | | |
| W. C. White | Kenosha city | 60,000 | | | | | | |
| **MILWAUKEE.** | | | | | | | | |
| Wauwatosa Cheese Co | Wauwatosa | 45,137 | | | | | | |
| F. A. Yankkee | Northern Junction | | | 75,000 | | 14,600 | | 140 |
| A. Thomas & Son | Good Hope | 14,000 | | | | 1,750 | | |
| **MANITOWOC.** | | | | | | | | |
| Lilloffe & Ecke* | Kiel | 13,696 | | | | | | 42 |
| A. Ecke* | Meemee | 8,921 | | | | | | 47 |
| Daniel Kuentz* | Newtonbury | | | | | | | 200 |
| **MONROE.** | | | | | | | | |
| Cataract Factory | Cataract | 12,500 | | | | | 1,050 | 40 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| N. W. Creamery | Tomah | 21,642 | | | | | 3,938 | 125 |
| Charles E. Bell | Tomah | 12,000 | | | | | | 65 |
| Sparta Factory | Sparta | 15,000 | | | | | | |
| Leon Valley | Leon | | 10,000 | | | | | 50 |
| Hunt's Mills | Medina | 15,000 | | | | | | |
| OUTAGAMIE. | | | | | | | | |
| Louis Perrott | Granville | | 11,650 | | | | | 28 |
| E. M. Gowell | Granville | | | | | 2,500 | | 15 |
| H. Brockway | Appleton | | 7,040 | | | | | 19 |
| H. M. Armstrong | Fredonia | | 1,200 | | | | | |
| Edward Nye | Fredonia | | 1,100 | | | | | |
| OZAUKEE. | | | | | | | | |
| Ingersol & Eckle | Port Washington | 40,000 | | 2,500 | | | | 160 |
| Butter made in the county | | | | | | | 480,000 | |

* New factory.

## *Dairy Statistics* — continued.

### SHEBOYGAN COUNTY.

| NAMES AND POST-OFFICE ADDRESSES. | No. Cows. | Pounds Milk. | Pounds Cheese. | Value. |
|---|---|---|---|---|
| J. A. Smith, Sheboygan | 250 | 750,710 | 75,071 | $8,092 |
| J. A. Smith, Sheboygan | 120 | 327,000 | 32,955 | 3,656 |
| J. A. Smith, Sheboygan | 120 | 306,990 | 30,699 | 3,328 |
| H. Habighurst, Sheboygan | 200 | 802,700 | 80,770 | 8,885 |
| C. Reich, Sheboygan | 150 | 588,453 | 59,128 | 6,254 |
| G. W. Weeden, Sheboygan | 150 | 486,817 | 48,400 | 5,534 |
| F. Widder, Sheboygan | 155 | 464,155 | 46,416 | 4,901 |
| J. Sieber, Sheboygan | 105 | 376,553 | 37,645 | 3,565 |
| W. Springborn, Sheboygan | 105 | 252,492 | 24,925 | 2,572 |
| Pierce & Son, Sheboygan Falls | 385 | 1,093,214 | 108,943 | 12,239 |
| Mather Bros., Sheboygan Falls | 219 | 821,118 | 78,745 | 9,000 |
| Holden Bros., Sheboygan Falls | 200 | 695,515 | 68,197 | 7,582 |
| J. G. Peacock, Sheb'gan Falls | 175 | 573,651 | 51,620 | 5,673 |
| A. & A. B. Dye, Sheg'gan Falls | 165 | 506,342 | 52,785 | 5,366 |
| D. Kuentz, Sheboygan Falls | 128 | 482,957 | 48,262 | 5,399 |
| Mrs. C. Strong, Sheb'gan Falls | 100 | 371,917 | 36,745 | 3,956 |
| A. D. DeLand, Sheb'gan Falls | 97 | 391,544 | 39,657 | 4,198 |
| H. Conover, Plymouth | 450 | 1,469,661 | 145,165 | 16,305 |
| H. Conover, Plymoth | 275 | 914,224 | 88,105 | 10,232 |
| S. H. Conover, Plymouth | 300 | 874,001 | 86,318 | 9,964 |
| H. J. Bamford, Plymouth | 222 | 825,504 | 83,482 | 9,127 |
| S. A. Rickmeier, Plymouth | 150 | 452,792 | 46,321 | 4,894 |
| S. Littlefield, Plymouth | 120 | 403,104 | 41,236 | 4,394 |
| W. Koch, Plymouth | 100 | 333,000 | 33,990 | 3,538 |
| H. Graef, Plymouth | 74 | 226,850 | 21,418 | 2,240 |
| Gilman Factory, Plymouth | 130 | 437,052 | 42,238 | 4,618 |
| A. Kuentz, Howard's Gr | 220 | 735,570 | 72,905 | 8,041 |
| W. Siemers, Howard's Gr | 150 | 491,126 | 49,235 | 5,328 |
| J. Ochs, Howard's Gr | 150 | 400,000 | 39,888 | ......... |
| C. Grœne, Johnsonville | 155 | 531,750 | 53,200 | 5,799 |
| C. Grœne, Johnsonville | 130 | 396,500 | 39,650 | 4.321 |
| J. Kæstner, Johnsonville | 130 | 433,600 | 43,060 | 4,596 |
| F. A. Streblow, Johnsonville | 130 | 386,619 | 40,050 | 4,298 |
| J. Slyfield, Hingham | 210 | 719,811 | 70,215 | 7,689 |
| J. Slyfield, Hingham | 150 | 553,473 | 54,722 | 5,969 |
| J. Slyfield, Hingham | 96 | 285,570 | 28,976 | 2,972 |
| E. Montgomery, Greenbush | 135 | 419,148 | 45,527 | 4,691 |
| Marsfield & Son, Greenbush | 115 | 374,295 | 39,046 | 4,060 |
| H. Eiche, Mosel | 254 | 841,491 | 79,556 | 8,484 |
| C. F. F. Karstædt, Mosel | 195 | 601,328 | 60,662 | 6,344 |
| G. W. Bradley, Scott | 75 | 131,250 | 13,150 | 1,345 |
| M. L. Yeamans, Scott | 60 | 131,940 | 13,050 | 1,287 |
| Harmon's Factory, Winooski | 380 | 1,362,068 | 136,923 | 14,959 |
| F. Joerns, Winooski | 160 | 562,202 | 58,986 | 6,157 |
| A. Dye, Onion River | 270 | 1,021,658 | 103,284 | 11,100 |
| M. Lemmin, Edwards | 226 | 710,017 | 70,940 | 7,694 |
| R. M. Johnson, Rathbun | 130 | 263,027 | 26,677 | 2,826 |
| J. Wisselink, Gibbsville | 80 | 210,357 | 21,347 | 2,273 |
| R. A. Swann, Cascade | 116 | ......... | 28,629 | 2,862 |
| W. Crosby & Co., Cascade | 400 | 1,365,938 | 136,000 | ......... |
| L. Hills, Glenbeulah | 31 | 43,930 | 4,460 | 424 |
| S. Reiniking, Franklin | ......... | ......... | 50,000 | ......... |
| W. Berkle, Howard's Gr | ......... | ......... | 46,000 | ......... |
| H. Mahler, Sheboygan Falls | ......... | ......... | 44,000 | ......... |

*Dairy Statistics — Sheboygan County* — continued.

| NAMES AND POST-OFFICE ADDRESSES. | No. Cows. | Pounds Milk. | Pounds Cheese. | Value. |
|---|---|---|---|---|
| John Dessau, Sheboygan Falls | | | 36,000 | |
| J. A. Smith, Glenbeulah | | | 36,000 | |
| C. Altrop, Mosel | | | 30,000 | |
| Wilson Jt. Stock, Sheboygan | | | 55,000 | |
| Wilson Six Corners, Sheboyg'n | | | 25,000 | |
| C. Rockwell, Hingham | | | 10,000 | |
| H. Feldman, Elkhart | | | 8,000 | |
| J. Negler, Russell | | | 6,000 | |
| Total | 9,870 | 31,958,824 | 3,185,275 | $345,583 |

Footings of cows, milk and value, obtained by giving estimated and partially reported factories, the same proportions as those fully reported.

| | |
|---|---|
| Average amount of cheese per cow | 323 lbs. |
| Average value of cheese per cow | $35 00 |
| Average price of cheese | 10 $\frac{85}{100}$ cts |
| Average pounds milk to 1 pound cheese | 10 $\frac{1}{30}$ lbs. |

S. LITTLEFIELD,
*Secretary Sheboygan Falls Dairy Board of Trade.*

*Dairy Statistics.*—continued.

| NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. Cows to each Factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory Make. | Cheese, Private Dairy. | Cheese, Limberger | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| RICHLAND. | | | | | | | | |
| G. J. Carswell & Son | Lone Rock | | 38,200 | | | | | 75 |
| H. L. Eating | Lone Rock | 120,000 | | | | | | 325 |
| A. Shaunce | Bear Valley | 30,000 | | | | | | |
| Geo. Turner | Sextonville | 40,000 | | | | | | |
| A. & D. Beckwith * | Lone Rock | 99,399 | | | | 1,000 | | 250 |
| Barker's Factory | Bear Valley | 35,000 | | | | | | 125 |
| ROCK. | | | | | | | | |
| Bent, Cheever & Pierce | Clinton | 141,959 | | | | | | 650 |
| B. S. Hoxie | Cooksville | 50,622 | | | | | | 175 |
| Wm. Zimmerman | Edgerton | | | | | | 2,000 | 16 |
| James Clough | Edgerton | | | | | 38,475 | | 325 |
| E. Devereux | Evansville | 185,300 | | | | | | 600 |
| Clover Dale Factory | Lima Center | 72,484 | | | | 2,925 | | 325 |
| Godfrey's Factory * | Lima Center | | | | | | | |
| WAUKESHA. | | | | | | | | |
| Olin & Clinton | Waukesha | 80,000 | | | | | | 450 |
| T. C. Dousman | Waterville | 120,000 | | | | | | |
| B. R. Hinckley | Oconomowoc | 118,000 | | | | | | |
| Monterey Factory | Monterey | 45,000 | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Frank Shultis | Waukesha | 160,000 | ...... | ...... | ...... | ...... | ...... | 500 |
| Thomas Steel | Genesee | 68,728 | ...... | ...... | ...... | ...... | ...... | ...... |
| Richard Milton | Eagle | 30,000 | ...... | ...... | ...... | ...... | ...... | 90 |
| Frank Shultis | Mukwonago | 23,000 | ...... | ...... | ...... | ...... | ...... | 125 |
| **WAUSHARA.** | | | | | | | | |
| A. H. Wheaton | Auroraville | 29,167 | ...... | ...... | ...... | ...... | ...... | 130 |
| C. P. Colt* | Poysippi | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| **WAUPACA.** | | | | | | | | |
| John Moodie | Weyauwega | 12,893 | ...... | ...... | ...... | ...... | ...... | 78 |
| S. A. Oaks | Ogdensburg | 6,365 | ...... | ...... | ...... | ...... | ...... | 30 |
| Charles Gibson | Lind | 33,443 | ...... | ...... | ...... | ...... | ...... | 175 |
| Wm. Hamilton* | Clintonville | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| Thomas W. Rhodes | Weyauwega | ...... | ...... | ...... | ...... | 1,984 | ...... | 10 |
| Craig & McCord | Royalton | 5,270 | ...... | ...... | ...... | ...... | 30,000 | 85 |
| New London Factory | New London | 14,326 | ...... | ...... | ...... | ...... | ...... | 50 |
| **WALWORTH.** | | | | | | | | |
| Pearson Brothers† | Sharon | 359,906 | ...... | ...... | ...... | ...... | ...... | 1,215 |
| Delavan Cheese Co. | Delavan | 37,357 | ...... | ...... | ...... | ...... | ...... | 200 |
| S. G. Nichols | Geneva Lake | ...... | ...... | ...... | ...... | 11,000 | ...... | 55 |
| A. Jewell | Spring Prairie | ...... | ...... | ...... | ...... | 4,000 | ...... | 20 |
| S. Lytle | Elkhorn | ...... | ...... | ...... | ...... | 3,600 | ...... | 18 |
| D. L. Flack | Elkhorn | ...... | ...... | ...... | ...... | 5,000 | ...... | 25 |
| J. G. Flack | Elkhorn | ...... | ...... | ...... | ...... | 5,000 | ...... | 25 |
| J. A. Chase | Elkhorn | 45,000 | ...... | ...... | ...... | ...... | ...... | 110 |
| Chase, Berner & Casswell | Elkhorn | 35,000 | ...... | ...... | ...... | ...... | ...... | 90 |
| C. R. Beach | Whitewater | ...... | ...... | ...... | ...... | 7,800 | ...... | 30 |
| H. A. Conger* | Whitewater | ...... | ...... | ...... | ...... | ...... | ...... | ...... |

* New factory.  † The largest factory in the state.

*Dairy Statistics* — continued.

| COUNTIES AND NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. Cows to each Factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory Make. | Cheese, Private Dairy. | Cheese, Limberger. | Cheese, Swiss | Butter, Creamery. | Butter, Private Dairy. | |
| WINNEBAGO. | | | | | | | | |
| John Ryfe | Oshkosh | | | | 32,000 | 1,200 | | 60 |
| Crist. Perrin | Oshkosh | | | 29,000 | 5,000 | 400 | | 70 |
| Crist. Boss | Oshkosh | | | 44,000 | 6,000 | 600 | | 120 |
| C. Bellinger | Oshkosh | | | 17,000 | | 1,000 | | 60 |
| —— Kettle | Oshkosh | | | 28,000 | | 900 | | 70 |
| George Rogers | Oshkosh | | 10,000 | | | 700 | | 40 |
| Charles Vedder | Eureka | 29,170 | | | | | | 150 |
| F. Stune | Waukau | 22,500 | | | | | | 216 |
| D. Grossman | Omro | 83,000 | | | | | | 275 |
| S. S. Walter | Eureka | 36,000 | | | | 9,000 | | 177 |
| Bishops Cheese Factory | Omro | | | | | | | |
| J. G. Picket | Pickets Station | 55,327 | | | | | | 250 |
| F. W. Wheeler | Neenah | 35,000 | | | | | | 150 |
| Henry Searl's Factory | Pickets Station | | | | | | | |
| Emery Davis' Factory | Pickets Station | | | | | | | |
| Peas' Factory | | 36,000 | | | | | | 110 |
| Total | | | | | | | | |

## DAIRY BOARD OF TRADE.

### SHEBGYGAN FALLS, 1877.

*President* — Judge Geo. W. Weeden, Sheboygan.
*Secretary* — S. Littlefield, Plymouth.
*Treasurer* — F. Strong, Sheboygan Falls.

Membership about fifty.

Meetings every Friday, from May 11th to September 28th.

Meetings and sales informal and no correct account of the business transacted there can be given. Principal features, receipt of telegrams on the state of New York and Liverpool markets.

Greatest amount of cheese offered on any one day (Aug. 11), 4,160 cheddar and 2,480 "Young America's."

## WAUPACA COUNTY DAIRYMEN'S ASSOCIATION.

*President* — E. W. Brown, Waupaca.
*Secretary* — Thos. W. Rodes, Waupaca.
*Treasurer* — W. Mastero, Waupaca.

Meetings every two weeks, at Waupaca.

onsin dairymen's association. 47.11

SEVENTH ANNUAL REPORT

OF THE

# WISCONSIN
# DAIRYMEN'S ASSOCIATION,

HELD AT

KENOSHA, WIS., JANUARY 22-23, 1879.

REPORT OF PROCEEDINGS, ANNUAL ADDRESS OF THE PRESIDENT, AND INTERESTING ESSAYS

RELATING TO THE

## DAIRY INTERESTS.

COMPILED BY

D. W. CURTIS, SECRETARY.

MADISON, WIS.:
DAVID ATWOOD, STATE PRINTER.
1879.

1879, June 13.
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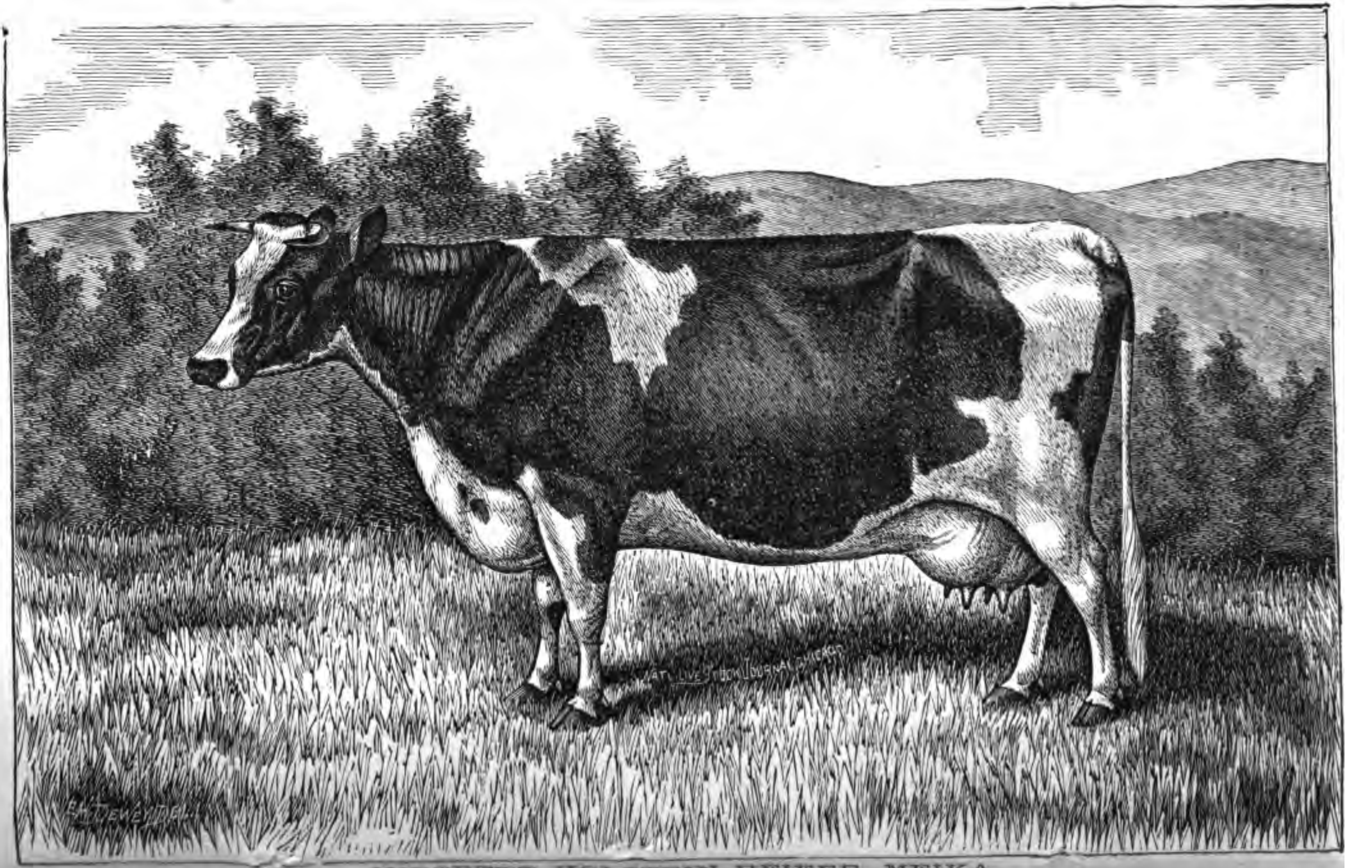
of Madison, Wis.


NAT. LIVE STOCK JOURNAL CHICAGO

IMPORTED HOLSTEIN HEIFER, MEIKA.

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# OFFICERS, 1879.

**PRESIDENT,**

Z. G. SIMMONS,

Kenosha, Kenosha Co.

**VICE PRESIDENTS,**

CHESTER HAZEN, Ladoga, Fond du Lac Co.

**President Wisconsin Dairymen's Association from 1872-4.**

HIRAM SMITH, Sheboygan Falls, Sheboygan Co.

**President Wisconsin Dairymen's Association from 1875-6.**

A. D. DeLAND, Sheboygan Falls, Sheboygan Co.

**President Wisconsin Dairymen's Association, 1877.**

H. F. DOUSMAN, Waterville, Waukesha Co.

**President Wisconsin Dairymen's Association, 1878.**

**SECRETARY,**

D. W. CURTIS,

Fort Atkinson, Jefferson Co.

**TREASURER,**

O. P. CLINTON,

Waukesha, Waukesha Co.

# . ARTICLES OF ASSOCIATION.

[Adopted in 1872.]

---

ART. I. The name of this organization shall be, the Wisconsin Dairymen's Association.

ART. II. The officers of the association shall consist of a president, two vice presidents, and a secretary and treasurer.

ART. III. The president, vice president, secretary and treasurer shall constitute the executive board of the association.

ART. IV. The officers of the association shall be elected at the annual meeting, and shall retain their office until their successors are chosen.

ART. V. The regular annual meeting of the association shall occur on the second Tuesday of February, in each year, at such place as the executive board shall designate.

ART. VI. Any person may become a member of this association, and be entitled to all its benefits, by the annual payment of one dollar.

ART. VII. The executive board shall have power to call special meetings whenever and at such places as in their judgment its interests so demand.

ART. VIII. The officers of the association shall perform such other duties as usually devolve upon the officers of like associations.

ART. IX. The treasurer shall have the custody of all moneys belonging to the association, and authority to pay out the same whenever an order is presented, signed by the president and secretary.

# MEMBERS FOR 1879.

---

## A.

Ayer, H. M., Lodi.

## B.

Boyce, A. A., Lodi.
Bamford, H. J., Plymouth.
Blanchard, Y. C., Oakland.
Brown, K. T., Salem.
Brent, John, Mineral Point.
Baltz, Charles, Chicago.
Beach, C. R., Whitewater.
Boise, Israel, Davis Junction, Ill.
Benson, B. S., Geneva Junction.
Billet, George, Whitewater.
Bliss, N. J., & Bro., Kenosha.
Blackman, H. & H. G., Kenosha.
Booth Bros., Salem.
Barber, A. S., Salem.
Bond, Josiah, Kenosha.
Bain, L., Kenosha.
Bain, E., Kenosha.
Bundy, S., Fox River.
Boyd, John, 175 Lake-st., Chicago.
Beachel, Lewis, Kenosha.
Barber, A. H., Chicago.
Bennett, B., Lamartine.

## C.

Curtis, D. W., Fort Atkinson.
Curtis, F. C., Rocky Run.
Cornell, James, Oakfield.
Crossfield, --, Fort Atkinson.
Chase, John, Elkhorn.
Cheever, D. G., Clinton.
Colt, R. P., Poysippi.
Cochrane, J. B., Beaver Dam.
Crosby, Wm., Cascade.
Chase, O. C., Elkhorn.
Cowles, John, Elkhorn.
Clinton, O. P., Waukesha.
Conover, S. H., & Co., Plymouth.
Cornwell, A. D., Salem.
Clapp, I. J., Kenosha.
Cull, W. V., Salem.
Carpenter, E. A., Kenosha.
Cumfer, J. B., Kenosha.
Cook, Mr., Kenosha.
Conish & Curtis, Fort Atkinson.
Cass & Griffin, Kenosha.
Cutter, O., Kenosha.
Cole, Norman, Brodhead.
Carncross, Enias, West Point.

## D.

Dousman, H. F., Waterville.
Dewey, C. A., Kenosha.
Doan & Brown, Kenosha.
Drom & Hale, Kenosha.
Douse, B. C., Kenosha.
Dexter, W. L., Kenosha.
Droan, A. F., Antioch, Ill.
Durkee, H., Kenosha.
Dye, Miss Ella, Sheboygan Falls.
Dye, Mrs. A. B., Sheboygan Falls.
Deveraux, E., Evansville.

## E.

English Bros., Kenosha.
English, Thomas, Kenosha.
Earnest & Gonerman, Kenosha.
Eckle, J. M., Port Washington.

## F.

Fargo, E. B., Lake Mills.
Felch, E., Oakfield.
Foster, Asa, Elkhorn.
Farwell, J. V., Chicago.
Fowler, Douglas, Bristol.
Fish, J. M., Springfield.
Fairlamb, C. C., Arena.
Fox, O. O., Kenosha.
Foot, F. A., Kenosha.
Farr, Dr. A., Kenosha.
Fisher, L., Kenosha.
Fratt, N. D. Racine.
Fluck, D. L., Elkhorn.
Fowler, Douglas, Bristol.

## G.

Gottfriedson, J. G., Kenosha.
Grosh & Eichlman, Kenosha.
Griffith, Hugh, Racine.
Gallup, L. O., Elroy.

### H.

Hazen, Chester, Ladoga.
Helms, J. R., Salem.
Haesley, B., New Glarus.
Holt, L. C., Kenosha.
Humphrey, D., Mazomanie.
Humphrey, H. E., Ixonia Center.
Hubbard, L. D., Kenosha.
Hacker, T. L., Cottage Grove.
Houston, R. S., Kenosha.
Head, Dan & Co., Kenosha.
Holt, J. C., Kenosha.
Holt, C. D., Kenosha.
Hamlyn, Wm., Kenosha.
Hausen, Chr., 444 W. 16th-st., New York.
Hinckley, Col. R. B., Oconomowoc.
Howard, John, Waupun.

### I.

Ives, Edson, Fort Atkinson.
Ingram, W. W., New York.
Ingersoll, J. B., Port Washington.

### J.

Jones, W. F., Oakland.
Johnson, Wm. F., Salem.
Jewett & Tenny, Kenosha.

### K.

Kellogg, L. S., Fort Atkinson.
Kemp, Geo., Harvey.
Kellogg, J. M., Bristol.

### L.

Lefever, W., Eagle.
Larrabee, E. G., Pleasant Prairie.
Lawrence, G. C., Merchants' Dairy Freight Line, 88 La Salle-st, Chicago.
Lawrence, Geo., & Son, Waukesha.
Lee, Leonard, Kenosha.
Lamphen, W., Kenosha.

### M.

Munger, Milo, Howard.
Miles, Job, Lodi.
McIntosh, C. H., Lodi.
Myrick, M. O., Kenosha.
Meadyard, E. B., Geneva Lake.
McCanna, C. B., Springfield.
McCutchin, R. F., Whitewater.
Marshall, John, Whitewater.
Maynard, D. B., Salem.
Moodie, John, Weyauwega.

### N.

Nichols, S. J., Geneva Lake.
Nickthale, J., Belgium.
Newell, O. S., Kenosha.
Newell, T. L., Kenosha.

### O.

Orvis, James, Oakfield.
Olin, O. Z., Waukesha.
Olin, Q. C., Oakland.
O'Brien, Wm., Kenosha.

### P.

Phelps, Miss Jessie E., short-hand reporter, Evanston, Ill.
Porter, John, Mazomanie.
Pierson, R., Sharon.
Picket, J. G., Picket's Station.
Pierce Bros., Sheboygan Falls.
Peebles, E., Peebles.

### R.

Reynolds, S., Lodi.
Reineking, T. C., Franklin.
Rogers, S. O., Kenosha.
Root, L. B., Whitewater.
Robertson, Robert, Oakland.
Robinson, F., Kenosha.
Roberts, R. F., Bristol.
Rhodes, J. W., Somers.

### S.

Smith, J. J., Tomah.
Smith, J. A., Sheboygan.
Smith, Hiram, Sheboygan Falls.
Sherwin, ——, Elgin, Ill.
Smith, R. B., Fort Atkinson.
Snyder, Byron, Clinton.
Stevens, R. H., Ripon.
Seward, M. N., Harvey.
Shultis, Frank, Waukesha.
Simmons, S., Kenosha.
Simmons, Z. G., Kenosha.
Slauter, W. M., Kenosha.
Shultis, N., Waukesha.
Strumps, Wm., Cedar Grove.
Stanard, E. S., Woodworth.
Sheldon, E. E., Fort Atkinson.
Shroeder, C. A., Kenosha.
Stowe, Wm., Whitewater.
Slossen, R. H., Kenosha.
Sparta Cheese Co., Sparta.
Sweemer, Wm., Cedar Grove.

T.

Torrey, D., Kenosha.
Tuttle, Capt. J., Salem.
Torrey, K. S., Kenosha.
Tarber, H. H., Kenosha.

V.

Vedder, Chas., Eureka.
Vosburgh, J. B., Richmond, Ill.
Voetz, G. A., Kenosha.

W.

White, R. S., &. Co., Fort Atkinson.
Wheaton, A. H., Auroraville.
White, J. W., Waterville.
Williams, C., Bristol.
Walker, James, Racine.
White, W. C., Kenosha.
White, D. W., Kenosha.

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# WISCONSIN DAIRYMEN'S ASSOCIATION.

## SEVENTH ANNUAL MEETING.

At a meeting of the Executive Committee of the Association held in Milwaukee, the following programme and list of topics were chosen for discussion at the annual meeting to be held in the city of Kenosha, January 22 and 23, 1879.

### PROGRAMME.

#### WEDNESDAY.

12 o'clock, M. Organization of Convention.

#### WEDNESDAY AFTERNOON.

2:00, P. M. Address of welcome, by Dr. A. Farr, of Kenosha.
Response, by D. G. Cheever, Clinton.
2:45, P. M. Opening address by the President, H. F. Dousman.
3:15, P. M. Appointment of committees.
3:30, P. M. "The Influence of the Dairy Business upon the Farm and the Farmer." I. J. Clapp, Kenosha, Stephen Faville, Lake Mills.
4:30, P. M. "Dairying in Hard Times and its Advantages." Hiram Smith, Sheboygan Falls, President Northwestern Dairymen's Association.

#### WEDNESDAY EVENING.

7:00, P. M. Address by Prof. L. B. Arnold, Rochester, N. Y. Subject—The Philosophy of Cheese Making.

### THURSDAY MORNING.

9:00, A. M. General discussion upon Cheese Making. D. G. Cheever, Clinton Junction.

10:00, A. M. "Sub-Earth Ventilation as applied to Butter Making and Cheese Curing." Prof. J. H. Wilkinson, Harvard, Ill.

11:00, A. M. Secretary and Treasurer's report.

11:15, A. M. "What Ails the Butter?" A general discussion upon feed, care, and breeds of cows, setting the milk, and proper surrounding conditions. F. C. Curtis, Rocky Run; C. R. Beach, Whitewater; R. S. Houston, Kenosha.

### THURSDAY AFTERNOON.

2:00, P. M. Report of Committees and the election of officers.

2:45, P. M. "The International Dairy Fair," Reports of Visitors. Chester Hazen, Ladoga; W. D. Hoard, Fort Atkinson; Hiram Smith Sheboygan Falls; Stephen Faville, Lake Mills.

2:30, P. M. "Dairy Cows and how to Breed them." Rev. Geo. E. Wrenn, Highland Park, Ill.; Gen. Geo. E. Bryant, Sec'y State Agricultural Society, Madison, Wis.; W. C. White, Kenosha.

4:15, P. M. "As competitors in the dairy trade, Wisconsin farmers can not afford to neglect attending the annual meeting, becoming members, and thus learning what they can of improved methods and apparatus." J. A. Smith, Sheboygan; W. H. Morrison, Secretary Walworth County Agricultural Society, Little Prairie.

5:15, P. M. "The History of the Dairy Interest in Wisconsin." W. D. Hoard, Editor Jefferson County Union, Fort Atkinson.

Messrs. H. K. & F. B. Thurber, New York city, have generously donated to the Wisconsin Dairymen's Association, through W. D. Hoard, an English Chedder cheese, which won the first prize at the late great English cheese show, and a Stilton cheese, both of which will be on exhibition and distributed to members of the convention.

The association extends a cordial invitation to every one, both male and female, who have an interest in the dairy business, and desire to present their side of the question, to prepare short papers to be read at the convention.

### EVENING.

7:00, P. M. Dairy banquet and sociable at the Grant House, headquarters of the Association.

## PRIZES OFFERED TO EXHIBITORS OF BUTTER AND CHEESE AT THE CONVENTION.

Geo. S. Hart & Howell, produce commission merchants, 38 Pearl street, New York, offer a prize silver cup, valued at $100, to the manufacturer of the finest quality of full cream made cheese.

Competition for same to include all makers of factory cheese complying with the rules of the association.

Prize to be retained by the winner for one year, then to be returned to the association for renewed competition.

The maker who is awarded the cup on three successive seasons, to retain the same permanently.

The prize cup is of sterling silver, satin finish, with gold border and lining. Upon one side of it is engraved the figure of a cow, and upon the reverse side an appropriate inscription. The cup is also enclosed in an elegant satin lined case.

The cup was won last year by A. H. Wheaton, of Auroraville, Wis.

For the best cheese made at any time, a silver medal by the association.

For the best two cheese made in separate months, a gold medal by the association.

For the best and neatest plate of butter in pound or half pound prints, a silver medal by the association.

For the best two tubs of butter made at any time, a gold medal by the association.

No article will be allowed to compete for more than one prize.

Inventors and dealers in dairy utensils are invited to bring goods for exhibition, and a committee will be appointed to examine and report upon the same.

The citizens of Kenosha, with characteristic liberality, will entertain all members of the convention, free.

All persons whose names appear in the above programme are earnestly requested to prepare papers or deliver an address upon the subjects to which they are assigned.

H. F. DOUSMAN, President, Waterville.

D. W. CURTIS, Sec'y, Fort Atkinson.

# TRANSACTIONS

WITH

ACCOMPANYING PAPERS AND DISCUSSIONS

OF THE

# Wisconsin Dairymen's Association,

AT THEIR

## SEVENTH ANNUAL CONVENTION,

HELD AT

*Kenosha, January 22 and 23, 1879.*

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The Seventh Annual Convention of the Wisconsin Dairymen's Association convened in Kimball Hall on Wednesday, January 22, at 12 M., the president, Hon. H. F. Dousman, of Waterville, in the chair.

The convention was called to order and the president announced the programme for the afternoon's work, and adjourned until 2 P. M.

### *Afternoon Session.*

President Dousman called the convention to order and introduced the Hon. A. Farr, mayor of the city of Kenosha, who heartily welcomed the dairymen of Wisconsin and visitors from other states to the city of Kenosha.

## ADDRESS OF WELCOME.

*Mr. President and Gentlemen of the Wisconsin Dairymen's Association:* — I have the honor, as mayor of the city of Kenosha, and in behalf of the common council and our citizens generally, of welcoming you to our beautiful city and to our homes. You have become famous as dairymen, and we are proud to extend to you the right hand of fellowship, and to give to you, one and all, a most hearty welcome. We welcome you as men who have been instrumental in making our commonwealth renowned as a dairy state. So that to-day, our own beautiful Wisconsin stands second to none of her sister states in all that pertains to the dairy and dairy products.

The growth of a community depends almost entirely on the intelligent efforts of its people. They mark out the plan, lay the foundation walls, and give shape, form and direction to its character and its institutions.

I can remember when it was thought that the soils of the western states were inexhaustible. It was supposed that grain raising could go on with impunity to the end of time. Men continued farming on this supposition until they found their land so depleted that it refused to give but poor returns for the labor bestowed. When a business does not pay, our people soon make a change. So many of our farmers changed from grain raising to dairying, and to-day, as the result will show, some of the most highly cultivated farms and finest dairies the world ever saw are to be found in Wisconsin.

The success which has attended men engaged in this branch of husbandry is truly wonderful. We have some excellent dairies and dairy farms in our own county, equal to any other in the state. If you will visit them, you will need no lengthy or learned dissertation to inform you what dairying does for the farm and the farmer. We want you to see Z. G. Simmons' dairy. He has 400 cows, and makes at present 400 pounds of cheese per day. We also want you to see Ward C. White's, Hon. R. S. Houston's, Holt Brothers, and D. Torrey's. I mention these because they are all near town and easy of access. We have a host of other dairies equally good and equally important, but not so near to our city. We invite you to visit them all.

Mr. President and gentlemen: We hope and trust that your deliberations and discussions will be pleasant and profitable, and that your association will be the means of advancing this branch of industry to such a degree of perfection, that poor butter and poor cheese will be known only as articles of the past.

I see by the programme that distinguished gentlemen of our own and other states are to speak upon important topics pertaining to the farm and the farmer. They will speak from actual experience. The knowledge they will impart will be a feast of fat things to all who listen.

Again, we bid you welcome, thrice welcome.

D. G. Cheever, of Clinton, on the part of the association, responded to the address of welcome:

In behalf of the Wisconsin Dairymen's Association, and in behalf of the dairy interests of the state, we thank you, Mr. Mayor, and through you the citizens of Kenosha, most heartily and kindly for your generous and cordial welcome to this beautiful city. This city, one of the gems of Lake Michigan, and one of the many harbor towns of Wisconsin, is not altogether unknown to fame. We have heard of your wealth, your intelligence, your loyalty, your activity in business, and your enterprise in various directions, and especially of your interest in the dairy and dairy products.

As you have justly remarked, Mr. Mayor, this small county of only eight towns has within its borders some of the largest and finest dairies in the state of Wisconsin; and, taking into consideration its size, we can justly style it the banner county of the state in dairy interests. We have come here for no holiday or pastime, but to represent, and work for, an interest which has been growing in this country for many years, until it has now assumed gigantic proportions, profoundly interesting the people of Wisconsin, and of the entire country; and not only this country, but Europe is looking across the great waters, watching with interest the results of our efforts in this direction.

I was not a little surprised recently, while investigating matters relating to the dairy, to learn that the land and cows in the United States employed in furnishing milk, butter and cheese was valued at not less than $1,300,000,000, and that the combined value of butter and cheese annually produced, amounts to the enormous sum of

$350,000,000, or $50,000,000 more than the entire wheat crop of this country. But it represents something more than mere money value. The dairy interest means more productive and consequently more valuable farms, better farmers, comfortable and cheerful homes, kind and loyal citizens; for no dairyman can attain to success in his calling without kindness and gentleness towards his animals, which kindness will overflow to his family, his neighbors and to all mankind.

We have come here to consult together upon the various topics appertaining to this great branch of industry, and we trust that the citizens of Kenosha will be interested in our deliberations, and thus, in some degree, be paid for the hearty welcome, kindly greetings and generous hospitality which they have, through you, extended to us. We invite and welcome you to our discussions, and hope you will be paid for assembling with us at the various sessions of this convention.

Again I say for our association, we extend to you, Mr. Mayor and citizens of Kenosha, our hearty thanks for your kind words and worthy deeds in our behalf.

## ANNUAL ADDRESS.

BY HON. H. F. DOUSMAN, PRESIDENT.

Waterville.

*Gentlemen of the Convention:* — Among the most familiar exhibitions of human nature in this weary world, is the charming candor with which all men, even the worst, acknowledge the faults of their neighbors, and the patient resignation with which they bear their neighbors' trials and misfortunes.

From this tendency of the average man, the dairymen of Wisconsin being as individuals but average men, can claim no exemption; but as a body, they can lay claim to possessing and acting upon that higher philosophy which teaches that it is the part of true wisdom to acknowledge candidly to ourselves our own faults and errors, to the end that being known, a remedy may be found, if one exists, or failing, that they may be patiently borne.

This association, whose annual meeting we are now celebrating, in its inception and progress, is proof of this assertion. It was born in troublous times, gotten up with the distinct definite purpose of remedying known evils. When it was organized, in 1872, the brand "Wisconsin" was a taint upon a package of dairy product, and a taint which cost money. We were producing largely of both butter and cheese, but there was no demand for our goods east of Lake Michigan. Our unselfish brethren, the Chicago dealers, bought our property at their own prices, and branding it "New York," scattered it over the west, making the legitimate profit on the imported goods, and whatever additional profit their cupidity could wring from our ignorance and impotence, and the dairymen of Wisconsin were ground as between the upper and the nether millstone. To-day, the brand "Wisconsin" on a package of dairy product, attracts attention and entitles it to consideration in any of the great markets of the world, and that this is so is largely due to this association.

By your constant and intelligent efforts to improve the quality of your goods; by your good business judgment and enterprise, in combining your scattering lots and shipping them to the great markets where they would be sold on their merits; by the displays you have made, at the exhibitions you have inaugurated as well as at those you have patronized — first at Milwaukee in 1875, the next year at Philadelphia, at Chicago in 1877, and again the past December at the great show in New York — you have made the world's buyers aware of the fact that you make good butter and cheese in quantities, and to-day they stand at your doors ready to take all you make at its fair market value.

By your action in this matter, you have added millions of dollars to the taxable property of the state, and elevated Wisconsin to the proud position of the second dairy state in the Union.

And yet all this is the outcome of a meeting held by a dozen men at Watertown, in February, 1872. It only illustrates again the old truth that with men, and communities, and states, their salvation is in their own hands, and that an intelligent and resolute use of the means which lie all about them will most certainly achieve it.

But, gentlemen, life is a warfare which will never be accomplished, and it behooves us to turn from the achievements of the past to face the difficulties of the present and the dangers of the future. To-day the dairy interest is more depressed than it has been since the organization of this association. The spectre of overproduction, which has been the bugbear of the last fifteen years, has become the dread reality of 1878. An increase of thirty per cent. in the production, as shown by the receipts in New York, has not been followed by an equal increase in the world's consumption, and to-day the markets are full of stock, trade is dull and prices are low.

Yet this, like all clouds, has its silver lining. Turn to whatever market report you will, you will find that prime cheese are reported scarce, and selling at fairly remunerative prices.

Gentlemen, in my judgment the salvation of the dairy interest depends upon our thoroughly comprehending the whole significance of those few words.

We all know that we made more cheese last year, *such as it was,* than the world would eat; yet I firmly believe if every cheese made in 1878 had been prime, they would all have been consumed at fair prices, the stocks to-day would not be burdensome, and the trade would be in a healthy condition.

Gentlemen, you don't see the last of your cheese when, having palmed them off on some buyer, you box them up and haul them away to the railroad station; but till they fulfill their mission here on earth, till they are eaten and gone, transformed into blood and brain and muscle, they are just as palpable as though they were still on the shelves of your factories, and their influence reaches to every nerve in your pocket books.

It is hard to overestimate the lasting qualities of poor cheese; but just imagine for a moment this convention, who are cheese eaters as well as cheese makers, supplied with first class cheese, or with such as is selling in New York and Chicago for two or three cents a pound, is it an extravagant estimate to say that ten of the former would be eaten in the same time that would be required to consume one of the latter; and if, as is usually the case, while the latter is being eaten, no other cheese can be got, and at the end of that time the nine cheese would be left on the shelves, and the physical ability of this community to consume those cheese would be gone forever, because the time during which they should have been eaten up has been lost.

Apply this calculation to what we all know of the quality of the cheese made in 1878, and the stocks in sight to-day are easily accounted for.

And now, I want to make the broad, emphatic, unqualified assertion — there is no excuse for making poor cheese. If your natural climate is such that there is no certainty of being able to command the necessary conditions, keep out of the business, for your success in it will be small and uncertain, and the harm you will do will be great and constant. If the pasture in your particular locality is such that clean flavored butter and cheese cannot be made from your milk, it still will grow good pigs and make fat calves. If your utensils are not what they should be, and your buildings not fitted for curing and keeping the product after being made, remedy both evils, for it is easily done and not very expensive. Finally, if with good utensils and buildings, and good milk given, your maker fails to find good cheese in it, knock him in the head as remorselessly as you would a deacon calf, for that, at least, is harmless, or, if let alone, will grow up to be of some use in the world, while he, every day of his life, is a curse to the community in which he lives, and to the whole dairy interest from Maine to California.

Gentlemen, I have read you quite a homily, but it is in the direction I feel the thought of this convention should take, and I have no apologies to make. We say the times are hard, and so undoubtedly they are; but let us consider our situation for a moment:

The largest crop of wheat this nation has ever grown is now being marketed; the fourth in a series of full corn crops has just been gathered, and it is 30,000,000 bushels larger than the previous one; more hogs than we ever fattened before are now going into barrels; we all know to our sorrow that more cheese was made last year than ever before; more cotton was raised in 1877 than in any year since the great crop of 1860, and the crop harvested last fall, and now being marketed, is 250,000 bales larger than that of 1877; the patient labor of our miners' garnered a harvest of $100,000,000 worth of gold and silver during the year, and the bowels of the earth are pouring forth oil at the rate of 40,000 barrels a day.

These things are not the evidences of wealth, but are wealth itself, and of these things and things such as these, this nation exported an average of $2,000,000 worth a day for each and every day of the year just past.

Again, for the first month in its life, the greenback bears upon its face no unmeaning legend.

With the vast production of the staple articles indicated above, and the moderate prices resulting therefrom, and with financial stability assured, this country is bound to enjoy such a measure of general prosperity as it has never seen before; and if we are true to ourselves when the tide, which even now is rising, shall have reached its flood, the dairy interest will take no second rank with her sister industries.

President Dousman appointed the following committees:

*On Membership* — Capt. J. Tuttle, Salem; I. J. Clapp, Kenosha; J. B. Vosburgh, Genoa Junction.

*On Nomination of Officers* — W. D. Hoard, Fort Atkinson; W. C. White, Kenosha; A. A. Boyce, Lodi.

*On Dairy Utensils* — John Porter, Mazomanie; J. J. Smith, Tomah; O. Z. Olin, Waukesha.

*On Resolutions* — D. G. Cheever, Clinton; J. A. Smith, Sheboygan; R. P. McGlincy, Elgin, Ill.

*Judges on Butter and Cheese* — H. M. Ayer, Lodi; A. H. Barber, Chicago; W. W. Ingram, New York.

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## THE INFLUENCE OF THE DAIRY BUSINESS UPON THE FARM AND FARMER.

BY I. J. CLAPP, KENOSHA.

Every kind of farming is good, but all will admit that some special lines of agricultural enterprise may have advantages over others. It will be expected of me, in this paper, that I shall call your attention to some of the peculiar advantages of dairy farming; its influence on the farm and farmer. Some of these advantages are so well known and obvious as to require only the briefest mention; for example, the direct benefit of this kind of farming to the farm itself, by keeping the manures at home, increasing their quantity, and augmenting the real value of the farm by making it more and more and more productive each year. On this point, every intelligent farmer knows while grain-producing exhausts a farm, dairying, when properly conducted, steadily enriches it. But there are certain other advantages not so often duly considered. Let me refer to the matter of system. Every man with practical eye, in traveling through the country, cannot help noticing the slipshod way in which much farming is carried on. This, in fact, is one great reason why our farmers are not able more rapidly to increase their capital, and consequently fail to improve their buildings, fences, tools, and farming appliances.

These things are perfectly familiar. You see them every day. The close observer will notice, on more than one-half of the farms, the reapers, the mowers, the plows, drags, wagons, shrinking and rotting in sun and rain, not from any necessity, but simply because the farmer is so shabby in his habits that he has failed to provide proper shelter; or, if he has a shed, is too negligent to put his tools under it. I am persuaded, in short, that the main curse of the average farmer is a lack of what might be called snugness of habits.

Now dairying is a variety of farming which teaches a man the absolute necessity of system; for one thing, a dairyman must be a prompt farmer; he is compelled to work to time. His cows must be milked regularly morning and evening at stated times. The wise dairyman will soon learn the value of a clock in his barn as well as in his house. The man who keeps cows soon discovers what, by the way, is equally important in all other branches of stock-raising, namely, the necessity of *regular feeding*, for he soon finds that irregular feeding makes his animals uneasy and restless, which will always be followed by a falling off in the yield of milk. The water cows drink, the air they breathe, the quality and the quantity of food they consume, must not be left to hap-hazard. The barns must be kept clean and well ventilated. The cows must be gently handled, never spoken to harshly, but always in moderate and kindly tones. They must be protected against fright or undue excitement.

It is my opinion, when a single cow is in her periodic heat, her milk should be kept by itself.

Thus the dairyman's farm becomes a school of training in the matter of carefulness.

But passing from barn to the milk-room, this becomes even more apparent; here the dairyman is kept constantly on the alert; here he is compelled to be a "minute-man" most emphatically. He must watch the thermometer and keep the temperature within a certain precise range of degrees. The cream must be taken off or whey removed, at just the right time. The churning done when the cream is in a certain definite condition. So with other matters. There must be absolute promptness, or the product will sink in scale of value. Uniformity of stroke in churning and vertical motion of lever in working the butter must be carefully observed, lest the grain of the delicate esculent should be broken. So also the proper proportion and quality of salt used, with a thousand other details, are to be strictly observed. Of course I am telling you dairymen nothing new; these are too well known and established principles of dairying; but every intelligent dairyman will be on the constant look-out for new principles and methods. This is what renders his business one of constant exercise for the mind.

Many important problems in relation to butter and cheese remain to be solved. I will only refer, for instance, to the unsettled question as to whether the souring of the curd in the whey renders the cheese indigestible, or whether the best plan of setting the milk for cream be by the flat pan process or by the submerged or Cooly system. Indeed, the making of butter and cheese to-day is no suitable calling for an unthinking man; it demands *brains*, and is really no ordinary mental discipline.

The wheat raiser has but few and simple things to think of. He may plow, sow, reap and market five hundred acres of grain, and still be a man of few ideas and of narrow mental culture. But the dairyman is compelled by the very necessity of his business to be a man with eye open and active mind. He must see and talk with his brother dairyman. He must visit their establishments and study their methods. He must know the best breed of cattle, and quantity and quality of milk they yield. To this end, he must not simply stay at home, but he must stay at home and travel too. He must see with his own eyes the choicest herds. He must attend the fairs and conventions. He must read books and papers pertaining to his calling. In close connection with system comes the kindred matter of tidiness. The producer of barley and corn may be a slovenly man, but the dairyman learns to be a neat man. According to the proverb, "cleanliness is next to godliness," it is even so in the vocation of the dairyman. The very demands of his work preach to him moral lessons as to his personal habits. For example, no man can be a smoker of tobacco and at the same time a good butter maker, for whatever taints the air of the milk room affects the cream instantly, and injures the quality of the product.

In fact, nothing is more sensitive to atmospheric impurities than the material on which the dairyman works. The experts that stand between him and the consumer can detect the presence of the slightest foreign flavor in the butter. And often the consumer becomes his own expert. Let me relate a case: Two farmers, in the state of New York, living side by side on farms much alike, with conditions of water, grass and climate about the same, both made butter for the family market of the city of Rochester. For some reason farmer A could always get a larger price than farmer B could for his butter. Farmer A could not understand the *reason* of this. Meeting his neighbor A one day he inquired, "How is it that you always get a larger price than I do? It must be that you are a better hand at marketing than I am." "Let us see," replied farmer A. "Let us put two packages of butter — one of yours and one of mine — side by side and try the market." They did so. Both went together with their butter, and farmer A offered farmer B's butter to one of his own customers and persuaded him to try it; but the moment the customer tasted of the package he spit the butter from his mouth, with an oath, exclaiming: "This is not your butter. Somebody smokes tobacco in the house where this butter was made!" One man cast away his pipe, and from that time had no more complaints about the price of his butter.

A whole world of practical lessons hinge on the point of this story; not only tobacco, but a hundred other things will corrupt the taste of butter. So sensitive is cream to every form of offensive odor, that some butter-makers will not allow a lamp to be burned in the milk-room. The milkers must remove their boots before entering the milk-room on coming from the milk-shed. In short, the whole process of handling the milk, from the time when the milker with well washed hands draws the delicate fluid from the udder of the kine, to the time when the sweet edible is delivered in clean packages at the door of the consumer, the whole process all the way through is a continued lesson of the utmost *thoughtfulness* and *cleanliness*. From all this there is, and must be, a reflex influence; dairymen, as a class, show the effect of this training in their personal appearance. It is no disparagement of other branches of agriculture labor, but it is a simple fact, that wherever you see an assembly of dairymen, you look upon a body of especially intelligent men! Not a class of men who, when they come together in convention, advertise their calling by the mud on their boots or the hay seed in their hair.

Also dairying has its civilizing and humanizing influences upon the dairyman. "The merciful man is merciful to his beast," and the very success of his business depends largely upon the gentle manner in which his stock is handled and cared for. Kind handling, caressing, gentle and loving tones, must necessarily be employed in caring for one's stock, if the best results would be realized. And a watchful dairyman soon learns to love this mode of treatment, constantly practicing it, not only with his cows, but soon the same much desired but often absent qualification will find a place in the treatment of his family and friends.

On the other hand, you treat cows roughly, they treat you roughly in return; and when they do kick back, they hit where common experience has taught most men the wound is of more lasting nature and enduring pain than a mere thump on the shins, namely, the pocket. I am fully persuaded that if we were all trained to dairying, Bergh's occupation would be gone, and there would be no more need of special legislation to prevent cruelty to animals.

Let me refer to one other phase of the subject. My theme is the bearing of this pursuit on the farmer himself. No interest can be more vital to the farmer himself, than that his sons and daughters should be interested in the vocation in which he is engaged. In this regard the dairyman has some advantages over other departments of agricultural enterprise. For one thing, girls as well as boys can render important service in the making of butter and cheese. Then, as I have already pointed out, *dairying has a variety* of intellectual attractions possessed by no other kind of farming. It gains a hold upon the affections of young people.

It is the sorrow of many a farmer and many a farmer's wife, that the brightest boy too often tires of the monotony of farm-life, and wants to go to the town, where he can see and hear more to feed the brain and satisfy his mental curiosity. Nor is this merely a private question. Many of our best public men have begun to regard this branch of our subject with deepest concern. The future strength of our nation is involved in it. How shall we make agriculture a more intellectual occupation? How shall we retain our choicest and most talented sons and daughters on our farms, and keep them from flocking into the towns? This is the basis of Horace Greeley's oft-repeated exhortation, "Go west, young man."

I have in mind a man with whom I am well acquainted. He came to this state in the year 1857. Dairying in its present form was utterly unknown in these parts. My friend astonished the community by asserting that he intended to make a specialty of cheese making. All predicted his failure and financial ruin. They used all sorts of arguments to dissuade him from so wild a project. The climate was not auspicious; the grass was not right; the soil would not produce successfully tame grass, and butter and cheese could not be produced from the native grass. So his neighbors gravely informed him. But my friend persevered, and to-day we see him the possessor of one of the finest farms in the region in which he resides; furnished with elegant buildings; noble herds of cattle to delight the eye and increase the purse; while the happy owner himself is surrounded by grown up children who have never caught the contagion of the foolish town fever, but are contented and successful in the same employment in which the father gained fame and wealth as a pioneer. Let me also add that many of his neighbors have profited by his example, so that now the farm of my friend has become the centre of one of the most noted dairying counties in Wisconsin.

Let me then close with a single sentence. I have no special claim to speak for the makers of butter and cheese, but I will say this, with all the advantages which belong to, and some of which are peculiar to your calling, and with the many bright examples of pecuniary success and domestic happiness that adorns history, you who are met to-day to study the interests of this peculiar department of farming, have no occasion to regret, but every reason to be content with the lot and the work which Providence has assigned you.

Dr. Farr being called for by Capt. Tuttle, said:

*Mr. President:* I did not expect to be called out by my friend Capt. Tuttle, one of the oldest pioneers of our country, who has made the dairy a specialty, at least so far as entertaining the people at every opportunity; that is, in the summer time. He lives out by a beautiful lake, and he advises the people of Chicago and the surrounding country to come and he will dish out good butter. The subject presented is one that every dairyman should consider and practice. I have no question in my mind but that the success of the dairyman depends largely on the advice given by Mr. Clapp, namely, that order, neatness, and system, is absolutely necessary to the success of the dairyman. I know that the man whom he refers to as coming here was a pioneer in the trade, and his success has been wonderful; but no more so than others. The success of the dairy interest is surprising, considering the short time they have had to establish it, and I believe that with the assembling together of this association to exchange ideas, if they tell what they know, as Horace Greeley did, about farming, it will be beneficial and will result in great good to all. I am not a farmer myself, but I own a little farm, and I know what it is to run a farm without being on it myself; and as my friend, Capt. Tuttle, knows what it is to own a farm and live on it, I would call upon him to relate his experience.

Capt. Tuttle — Gentlemen: I have not anything to say, Dr. Farr having taken the wind all out of my sails, and I can't say a thing. I always get a pretty good price, and as Dr. Farr says, people come to my house in the summer time to get butter, but don't know as mine is any better than other folks. Dr. Farr has got a farm out in the country, and the reason he did not make anything is that the cows kicked over all the milk, and he could not make any butter; and I want to know from him where the profit came in?*

## BUTTER AND CHEESE MAKING.

By W. C. WHITE, Kenosha.

*Mr. President and Gentlemen:* I don't know that I can say anything that will interest any of you. I came into this country in 1857, not expecting to make any cheese or to do any dairying. I tried raising grain here for two years, and finding that I should lose what little I had if I kept on, I made up my mind that I had got to leave the country or do something else, and I then thought

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* The association employed Miss Jessie E. Phelps, of Evanston, Ill., as short-hand reporter for the convention. She did the work correctly and well, and at a reasonable price.

I would undertake to make cheese. My neighbors all discouraged me, and said I could not make it pay. Capt. Hibbard joined me, and said to me, "White, you can't do anything here; others have tried and failed." I had been here two years, and found that what few cows I had did well, and saw no reason why I could not make butter and cheese. I commenced with a cheese vat that would hold the milk of thirty cows. Before summer was over, it was not large enough. I sold that and got another that would hold the milk of fifty cows. Before next summer was over, that was too small, and I kept on until I got one that would hold the milk of eighty cows, and have used that most of the time since. Whenever I came to town and saw men that knew what I was doing, they would say, "why don't you fetch me in a piece of cheese," and made fun of me, because they thought it was not good for anything; but after I got some cured, I took a load to Racine. I went in there a stranger, and put up my team at the barn of a public house. The town was pretty full of Ohio cheese. I went around town until I found one man who wanted some, but he would not buy Wisconsin cheese; it was not good for anything, he said, and it is no use to talk to me. I replied I had some cheese on my wagon, and if he liked it well enough he could take it in and sell it; might give me what he was a mind to, as I did not want to carry it home. He laughed and said he would look at it, which he did, and said it looked first rate. I handed him a trier, and he said he would buy it, and give $8.00 a hundred and take what I had. I told him that was what I expected to get for it, and if he wanted any more, to write me at Kenosha. The next week I got a letter saying he wished more cheese, and I sold him cheese as long as he was in the business, and never since have I had to ask a man to buy a cheese. Have always had orders enough for all that I could make. I have now a couple of them at a store near by that were made in November of December, and made from sour milk, and it is my opinion we can make just as good cheese here as in any other state.

I have made cheese in New York and Massachusetts both, and have made more cheese to a cow here than I have in any other place.

Question. Is the cream worked in?

Answer. The cream is worked in.

Q. Don't you feed your cows better?

A. I do feed them better, for feed is cheaper here than east. I do claim that no man can make a good article of butter or cheese from a starving, poor lot of cows.

Q. Can you give us the process of making cheese from sour milk?

A. I had some milk that soured over night, and that was the first I had ever made. The milk was about loppered when I put in the rennet, and I drew the whey right off and let the curd settle on the bottom; then put in the water and scalded the curd; then drew that off and repeated the process.

Q. What temperature was the water?

A. Ninety-eight or 100°. After scalding it I drew that off and put on cold water right from the pump until it was very cold, salted and packed it. I then put it into a press, but could not get all the whey out, and found the cheese-cloths were sticky, but upon putting it into the curing room it turned out splendid. I sold that cheese in Chicago, with a lot of others. After he bought them I said to him, I had two sour milk cheeses. The milk was loppered when we set it. He said, "Where are they?" I showed them to him; and after he tried them he told me he wished they were all like those. Such cheese will shrink in weight.

Q. Did you have any experience in warm weather?

A. No, sir; I never have had.

Q. Were they made in the fall of the year?

A. Yes, sir; but when it was made our room was warm, and if we had much fire the milk soured.

Q. Does it make as much cheese as sweet milk?

A. It don't make as much, but the quality is better.

Q. How much is the shrinkage?

A. Well, perhaps one-eighth; it shrinks considerable.

Q. Have you tried the hot iron test?

A. I do sometimes, but I think I can tell pretty well without trying.

Q. I have reference to the sour ones.

A. No, sir; I thought they were sour enough any way.

Q. How many pounds of sour milk make a pound of cheese?

A. Eleven or twelve. I never weighed it, but think that is it.

Q. You don't own a cheese factory, you run a dairy?

A. I run a dairy.

Q. Have you any difficulty in holding the cream in?

A. I think there is a little waste, and the whey will be a little richer, but if you are careful in working it there will be but very little waste. I mix it with milk and pour it into a strainer, and then add morning's milk, and mix it in that way. When you set it, keep it gently stirred to prevent it from rising, until it coagulates.

Q. How much more stock can you keep on your farm now than you did when you began?

A. Nearly as much again. Our pastures have not improved as much as our meadows. I seldom let my cows feed on the meadows but we sometimes turn the calves on them.

Q. What sort of grasses do you prefer, mixed or separate?

A. I had forty acres seeded down to pasture. I put on it when I seeded, ten bushels of orchard grass; ten bushels of Kentucky blue grass; five bushels of red clover; one and one-half of white clover, and mixed all together and sowed by hand.

Q. Which do you prefer, Timothy, Orchard or Blue grass?

A. I think it is better mixed.

Q. Does that grass all remain there now?

A. Yes.

Q. How long have you used it for pasture?

A. Ten years.

Q. Have you ever mowed it for hay?

A. No, sir.

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## BUTTER AND CHEESE MAKING.

By J. J. SMITH, Tomah; C. HAZEN, Ladoga; J. M. KELLOGG, Bristol, and JOHN PORTER, Mazomanie.

### J. J. SMITH, TOMAH.

The thought ran through my mind in regard to the effect that the surrounding atmosphere may have upon milk. I dislike to mention a person's name in his absence, but a brother of mine, younger than myself, who drew the premium in New York state of $250.00 for the best butter, is a most inveterate smoker; and if any of you gentlemen can introduce me to a man who has smoked more tobacco and cigars up to date, I will sit down.

Q. Did your brother make that butter, Smith?

A. Well, I could not say; but I have been in his house often when it was pretty full of tobacco smoke in the pantry where the milk stood.

I represent the Smith family in the first cheese factory in Sheboygan county. My brother's farm and my own joined, and he would often come over at nine o'clock in the morning with his cheese in the press. Those things have changed now, with our experience. It is wonderful, the profits that have been made in Sheboygan county and throughout the state. I am getting to be an old man, but I think there are many younger men before me that will live to see Wisconsin the banner state of the Union in producing fine flavored butter and cheese.

C. Hazen — Perhaps I can give you some information in that butter business, as I am somewhat acquainted with Mr. Smith's brother. I don't think his smoking had anything to do with that butter, because his wife made it. They used the submerged plan, and it could not catch any of the smoke. I think when that butter was set, his wife took charge of it, and he was not in the room.

President Dousman, will you tell your experience?

### C. HAZEN, LADOGA.

I settled in this county in 1844, and I have kept a dairy on my farm ever since. In 1850, I commenced making cheese on what we called the improved plan of making it, with vats. My experience in selling cheese was something like Mr. White's. Nobody wanted Wisconsin cheese; but soon there got to be quite a demand for it, and it sold in our market as high as New York cheese. I would like to say one thing on "The Influence of the Dairy upon the Farm and Farmer," which has come under my observation. There is a marked difference in the farms in the vicinity of a cheese factory. Men from the east, traveling through the country, would remark that we had the best looking country and the best crops; and when I explained to them that we kept dairies in that section of the county, they were convinced of the good influence of the dairy upon the farms. We don't consider it a very inviting time to go into the dairy business, because the interest is pretty well crowded. The dairyman must do his work thoroughly, if he expects to succeed, and I would urge upon you the importance of carrying on a dairy in connection with a grain farm. Such a farm is worth, for five years to come, twice as much as a grain farm alone.

President Dousman — I think, gentlemen, in connection with this, I can tell a little incident that has come under my observation. I began running a cheese factory nine years next summer, and after I had commenced a man came to me and asked me what there was in the business, and if it was profitable. He said he had 128 acres of land, and he owed between $1,200 and $1,300 on it. I told him that, from all I could learn, it was profitable. He had five cows at the time, and I lent him money to buy a couple more. He took my advice and went into the dairy business. I ran the factory in that neighborhood for six years; at that time he had nine or ten cows. If one failed he traded it off or raised calves. Three years ago I moved farther away from him. That he sorely regretted, as he thought he could not afford to bring the milk so far, but I told him he was as well off as if I were only one-half mile away, as he could hitch up his team and get the milk off all his neighbors on the way, and make something out of it. He did so, and at the end of the season we settled, and he had $100 for hauling the milk, which more than paid the wages of a boy all summer. A year ago last August he was killed by lightning, and at that time he had enough money to pay every debt he owed. Had supported his family well, and had twelve cows. If he had lived he would probably have had fifteen or eighteen cows, and money at interest. I don't know of any case that will better illustrate this topic of the influence of the dairy upon the farm and farmers.

### J. M. KELLOGG, BRISTOL.

While Mr. Clapp was speaking about the treatment of cows I thought he made a most excellent point, and I wish to relate something that came under my observation. Last spring I rented my farm and cows to a German, and the cows had heretofore been treated kindly. We never used harsh language in the presence of the cows, or done anything to excite them. When he took the farm he had some inexperienced boys who treated the cows harshly, and when they went to drive them up they took a dog with them, and that worried the cows. I remonstrated with them, but it didn't have any effect. That system was kept up, and the result was that those forty cows, or forty-one, shrunk in their milk, on the same feed, some 300 pounds, and I could not attribute it to anything but the way they were treated; and my experience has been to feed them liberally and treat them kindly if you wish the best result.

### JOHN PORTER, MAZOMANIE.

As experience in dairy business seems to be the topic of this afternoon, perhaps it might be interesting to some to hear what I have been through to establish a dairy business. I came into this state the last of March, 1856, expecting to buy new land and go to farming. The railroad had got as far as Madison. I intended to buy government land, but could not buy an acre for less than $25; and seeing what miserable butter they had, I came to the conclusion that I could make a living making butter.

The first of October, I bought two cows, made a neck yoke, and carried the milk on my shoulders to the village. I bought wheat at sixty cents a bushel, took my milk and sold it in Mazomanie. My neighbors thought me very foolish to buy wheat, the only article there was any money in, and feed it to cows. I made a very good living by selling milk at six cents a quart. I ran in debt and built me a barn, and when it came spring, as the milk trade was done for, I purchased nine cows and commenced to make butter, and sold it at the best houses in Mazomanie. When I would call at their houses, I would get along all right until I told them the price (18c.), as butter was selling at ten and twelve cents, when they would shut the door in my face. Then, at the next house, I would get inside, so they couldn't shut me out, and tell them I wished to leave a crock of butter with them, and if they did not like it I would take it away; but I didn't have any butter to take away, and soon had a demand for all that I could make at eighteen cents per pound. My cows ran upon the commons. In 1857, the state fair was held in Madison, and I took some butter up there, but did not expect the premium, and was very much disappointed when the first premium was given to the man who pastured his cows on the common. Have always fed my cows well, and if we want to succeed, we must treat our cows well and feed them at all times of the year.

Q. Who owns that land now?

A. It is owned by different persons. I own part of it and have a clear deed of it. I would not care if I had another such a chance, and I often wonder how young men can hang about villages and cities when such splendid opportunities await them in the country. I am seventy-seven years old, and I milk ten cows when I am at home. Some people will tell you you must churn the milk, but I say it don't make any difference whether you churn the milk or the cream. If you will take the cream off the milk when it has thickened, you will have just as good butter.

Q. What breed of cows have you?

A. The best I can find. I think the Ayrshire is a nice little milker.

J. J. Smith — I heard a statement by a gentleman as to the manner of treating his cows, and I thought it a good one. When he went out to his barn in the morning and opened his stable door, he would say, "Good morning, ladies," to his nice two or three rows of cows there; and he made another statement, which I think is published, that his cows averaged about 600 pounds of cheese during the season. Am I correct?

W. C. White — Yes. Four years running we made a little over 600 pounds of cheese to a cow, and one year 624 pounds to a cow.

Smith — He then went on to state that those cows give a nice flow of milk, something like nine months. Some gentleman asked him, "How do you drive the cows off after you milk them?" and he said, "I commence feeding them marsh hay."

Porter — I feed my cows an equal proportion of corn and oats, not less than eight quarts to a cow. Later in the season, I feed four quarts of corn meal and a pretty good quantity of bran — about a ton a week. The feed costs more, but I think if you only feed enough bran you will get better milk.

Q. What do you think of warm feed?

A. I like it. One winter, for a trial, I fed my cows warm feed, and when I stopped and fed dry food, the milk shrunk one-fourth in three days, and although I increased the food, they did not reach their former standard until I again fed warm feed.

On motion, adjourned until 7 P. M.

*Evening Session.*

## THE PHILOSOPHY OF CHEESE MAKING.

BY PROF. L. B. ARNOLD, ROCHESTER, N. Y.

*Mr. President and Gentlemen:* I am glad to meet with you to-day. Not that I have any overweaning confidence in my ability to entertain and instruct you, or of pleasing your ears with smooth and well-rounded phrases, for to eloquence I lay no claim; but because I have long watched and admired the energy and ability with which you have pushed on the cause of progressive dairying, and have longed to meet you face to face, but that satisfaction has been denied me till now I have the fortune, for the first time, to meet a convention of the leading spirits of Wisconsin dairying — men with whom I have, for a long time, been jointly laboring, and I assure you, gentlemen, on my part, the meeting is one of great pleasure. I am also pleased with the subject you have selected as the basis of some remarks at this time, "The Philosophy of Cheese-Making," because it impresses me forcibly that you recognize the fact that there is some philosophy in cheese-making. Mr. President, when you and I began our career as cheese makers, there was no philosophy concerned in the business. As Dr. Valeker well said, "cheese-making was then an empyric art." The public announcement of the topic you have assigned me for to-day is a public acknowledgment that you now recognize cheese-making, in some respects at least, a science as well as an art. This speaks of progress. It is a public assurance that we have not, during our long years of toil, and study, and anxious thought, been laboring in vain; and I feel, Mr. President and gentlemen, when we come together upon an occasion like this, that we have a right to enjoy a little mutual pleasure, if not mutual admiration. But to my subject.

Cheese is a partially digested coagulum of milk, whose intrinsic merit seems to be well nigh lost sight of by the force of surrounding circumstances and artificial habits of diet and tastes, which have warped the appetites of men, some in one way and some in another, till natural taste and usefulness has been nearly lost sight of. There seems to be nothing so bad or so good that somebody will not admire the one or despise the other.

It is said, there is no accounting for tastes, and it does sometimes seem impossible to do so; but I think the taste for the different varieties of cheese can be pretty satisfactorily accounted for on the score of habit. The preferences of appetite generally are largely due to habit. One may learn to like or dislike almost any thing that will contribute to the support of human life. Habit will obliterate or modify an old taste, or build up a new one, or even pervert natural instincts, if time is given to operate in. We are daily witness to the fact that habit converts what, to the unvitiated human taste, is the most offensive, filthy, loathsome and poisonous plant in the whole vegetable kingdom, into a delicious morsel to roll under the tongue. It gradually fills a potion, well known to be loaded with destructive poison, and ruin, and death, with seductive charms which openly lure to certain fatality. Considering the force of habit, it is easy to account for tenacious preferences of taste, and to understand why one man will pay a high price for a variety of cheese which another man would require pay for eating; but it makes it exceedingly difficult, with all the warped tastes of humanity to counterbalance, to decide what conditions or qualities must enter into cheese to make it absolutely or inherently best.

A query here suggests itself. Suppose samples of all the different varieties of cheese in the world, including those made from the milk of cows, goats, sheep, deer, buffalos, asses, mares and camels, should all be brought into one collection, and judges, one from the consumers of each variety, should be selected to award a sweepstake prize to the best cheese in the world, their award "to be based upon inherent and comparative merit." At this great international cheese fair, by what standard of excellence, or by what taste, or idea of merit, could they be guided in their decision? Would not each judge, guided by the light of his own habit and taste, artificial though it be, feel a conscientious assurance that he would be right in voting for his favorite cheese, and thus each variety get just one vote and no more? With personal preferences all equally strong, who is going to give way, and what argument can either use to establish a preference that shall be convincing or reasonable?

Let us suppose for a few minutes that the judges for such an occasion are assembled in council, and that we are listening to the arguments we may suppose they would make. We will suppose an Englishman rises first, and with an air of confidence, assures his honorable associates that he represents the highest civilization and intelligence and culture on the globe, and therefore a taste which is most refined and accurate; that the people of this country will pay more for Cheddar cheese than any other, which is an evidence that it suits their taste best, and therefore is the best, and that all the nations of the earth should yield to his views of excellence. Without even a thought that somebody else could apply just such an argument to his own case, he sits down satisfied with himself. He is followed by a Frenchman who evidently feels a pride in referring to the leadership of his nation in the delicacies of cuisinery, and insinuating, as only a Frenchman knows how to, that the English taste is a little obtuse; insists that the exquisite taste accredited to his people ought to be the highest authority in all things relating to human appetites, of which cheese is one, and holds up one of his favorite Roquefort cheeses as an evidence that he is not claiming too much. He urges that this cheese of his nation's choice is made from the milk of sheep and goats fed on the best of pasturage, and that the offensive odor of these animals, which to some extent attaches to their milk and cheese, is well toned down with plenty of barley meal, and the finishing touch of the cheesing process is done in a cave — a touch of which no other nation can boast. Here he rests his argument, and is succeeded by an Italian who holds aloft his national cheese, the little Parmesan, and with an insinuating air exclaims, "All the world admire aromatics, and esteem them as luxuries. These luxuries which are wanting in all other cheeses in the world, are woven with all their highest excellence into mine, which is green with herbs and teeming with fragrance." Now a Swiss arises, and lifting his broad Gruyere upon one edge perpendicularly, and turning it to display its four foot disc, he turns upon the Italian with a sneer, while he thus addresses him: "Your cheese is the product of skim milk. It is made with an acid and is dry and hard, and in itself tasteless. It has no flavor of cheese, but only the taste of herbs, which is none the better for being mingled with your skim cheese. I hold here, gentlemen, a cheese every way desirable. It is made of milk from grass on the verdant slopes of the Alps, acknowledged by all travelers to be the richest and highest flavored grass in the world. All the fine qualities of this grass are embodied in the meat of this cheese, and the perfect transformation of them into cheese is demonstrated by its tenacious texture and its numerous holes a full half inch in diameter, and by its strong characteristic odor."

After him an American shipper, fresh from the proud metropolis of his vast and growing nation, now attracts the attention of the audience. After talking awhile in fabulous numbers of the immensity of the herds which roam over his boundless pastures, and with astonishing figures measures the enormous imaginary products of butter and cheese they annually produce, and of the matchless skill of American factory men, he turns to his Swiss friend, and, with a knowing look, assures him that the holes in his cheese, of which he was so proud, are only a blighting curse; that no cheese can be good which contains holes, no matter what else there may be about it, and further, that his cheese does not *smell* right, because it does not smell like the hundreds of millions of pounds which he handles; and by way of demonstrating what a superior article is, he holds up a sample of American shipping cheese made on the acid plan, with one-quarter of it cut away to show the interior. "Here," he says, "is a cheese worthy of all praise. You see it has no holes in it. It is firm and rigid. It has no smell of cow, or goat or herb. Whatever there was of bad smell in the milk of which it was made, has been covered up with acid by soaking the curd in sour whey. Its flavor, to be sure, is only negatively excellent; but flavor is of little consequence. It has no bad flavor, and in color it is faultless. Before making, the milk was stained with just the right hue. You see how exactly it is developed in the completed cheese. As I turn the cut surface one way and the other, you see it glows with all the redness of a sunset reflection from a storm-laden cloud. This is important. In judging of cheese we put nothing before color. There are three things that go to make up a perfect cheese. They are — first, color; second, freedom from holes; and, third, firmness to endure the hardships of commerce. Some folks add a fourth item of flavor, but that is not essential. I think so little of it that in judging of cheese I never taste of it. Now here you see all that is essential combined in this sample. It is, indeed, a perfect cheese, and when it goes to market the English will pay for it the full price of their best Cheddar cheese, with only 40 per cent. off."

Gracious Heavens! exclaims a German as he rises with slow dignity, with eyes glistening with a sullen earnestness, and the perspiration starting from his lymphatic pores. What is this I hear?—an Englishman, boasting of his huge Cheddar, hard and dry, and which he himself must accompany with ale before he can digest it; a Frenchman, extolling his mouldy barley bread with a goaty odor; an Italian, flourishing his skim-milk cheese and herbs; a Swiss, exulting over an ill-shaped thing, tough, and full of holes, the work of putrefaction, and with only a faint smell of cheese; an American, praising a cheese with earthen hardness, that has neither taste nor smell, and is mostly valuable for the dyestuff it contains? If you want to see a cheese what is a cheese, he shouts, as he, to show its texture, crushes a brick of limburger in his huge hand till it squeezes through his fingers in long flattened curls, look here, and see a cheese solid, yet soft; rich, yet cannot spoil; a cheese one can live on and grow fat; a cheese full of flavor; and as for smell, you have nothing to compare with it, and with an air of assurance from feeling master of the situation, he thrusts his crushed limburger successively under the noses of his competitors, and there is an end of all argument.

There is no use in extending the scene. If we were to run it through the whole list of nations, we should not be likely to get any other criterions by which to render judgment, than those growing out of local habits and preferences. An arbitrary standard, with little or no reference to intrinsic value, is the rule by which judges, dealers and makers decide upon it. Even at the late International Fair, it did not escape preferences which were local and narrow, and insignificant when considered with reference to either inherent or comparative merit. I am not about to complain of, or censure the judges. They were men of intelligence and much experience in their way, and honorable above suspicion. But their views of merit seemed to be too narrow. Neither they, nor the executive committee who laid down the rules to guide their judgment, appeared to take the broad view which judges at an international fair should take. The committee required the judges to give just as much weight to the color of cheese as to its flavor or texture. There is absolutely no merit to color in cheese, as it does not at all enter into its inherent value, and most nations disregard it entirely, or, if regarded at all, they prefer other appearances than those valued so highly in New York.

Then an all-important point was compactness in the meat of the cheese. It must not be porous in the least. It is nothing against a cheese that it is solid. It is a circumstance rather in its favor, but then it is not all-important. A cheese may have great inherent value without being perfectly solid. The Gruyere is full of holes and yet is one of the most valuable cheeses made, and would live to bury a half dozen generations of our solid acid cheese.

The fact is, the scale of points and the judgments rendered were, so far as I could learn, all based on the English taste, which is in many respects arbitrary, whimsical, and foolish in the extreme. What sense in having a cheese just such a shape, just such a color, just so hard and dry, just so solid. What chance would an exhibit of Gruyere, or Brie, or Roquefort (cheeses which have pleased more tastes than any other in the world), stand in the estimation of judges whose views of merit are tied up with English whims, for I can call them by no more appropriate name? It was perfectly natural, and, so far as we are concerned, it was well enough to bend our make to English preference, whether well or ill founded, so long as we depend on England for a market for nearly half the cheese we make. It is to our interest to understand her caprices, and cater to them, too; but when we come to judge between the nations of the earth who have also local preferences, we must, or ought to fall back upon inherent and absolute merit. I have called attention to these points, not to find fault with or blame any one for what has passed, for I have no blame to bestow. I feel more like giving thanks and praise for exertions and sacrifices for ensuring success. We have undertaken to establish an International Dairy Fair Association, and if we would succeed and make the institution worthy of the name it assumes, we must conduct it with broader views than leveling everything down to English prejudices or English tastes.

I have another purpose in view in calling your attention to-day to the intrinsic merits of cheese, independently of English views. The time is soon coming — is indeed at our very doors — when we must look to some other source for marketing cheese than with our English cousins. We are now crowding upon them all the cheese they can possibly use, and all in the state of their finances they can afford to pay for, except at very low rates. We have facilities for producing cheese in quantities immensely greater than we are now doing, and it is very desirable to utilize them. With an open market, cheese is a profitable and stable production, and it is to our interest to make it so that it will please the general taste of mankind as well as that of our present special customer. To do this successfully, we must study the average taste of humanity, and if we are successful in meeting it, our goods will have the world for a market, and all we can make will bring an equivalent for our pains.

Having thus pointed out some of the difficulties in the way of deciding upon intrinsic merit, and the necessity of reaching it in our products, it will be in order now to say what inherent merit in cheese consists in, and then the means by which we can obtain it.

That cheese has something of real merit, is apparent from the fact that all the civilized nations of the globe use it in some of its manifold conditions and forms, and if we inquire into the purposes for which they use it, we shall find them to be two — one for its value as a food, or its ability to support human life, and the other as a luxury, or its ability to gratify taste. If we inspect cheese carefully, we shall see how these values are derived.

Cheese, we know very well, is developed out of the milk and curds of which we make it.

Cheese has for its principal foundation an albuminous constituent of milk, casein and such other matters as it can carry along with it, as fat and water, holding in solution sugar and albumen. It is not the fact of the presence of these constituents of milk in the coagulum or curd which makes the mass a cheese or gives it inherent value. It is never cheese till it undergoes a certain change, and when that change does occur, it becomes cheese and has a value as such, and not till then. In that change the atoms of casein have their affinity for each other weakened, so that they easily separate, and if placed in water separate entirely, or, if you please, dissolve; and instead of being, as we say, tough or curdy, the mass becomes plastic. This plasticity makes the cheese digestible, and gives it an inherent value as food. Until this change takes place the casein in the curd is insoluble, and extremely difficult, if not impossible of digestion in the human stomach. The more complete this change, the more plastic and soluble, and the more rapid and complete is the digestion of the cheese.

While the casein is undergoing this change, the fats which were in the milk also become changed, and assume new flavors, which give to the mass the characteristic flavor of cheese. This change in the fats of the milk is invariable, and it keeps pace so evenly with the action of the rennet on the casein, that the amount of flavor in the fats is a good measure of the change in the casein. The thousand and one variations occasioned by modifications in manufacture and curing, and in the composition of milk and added matter, foreign ferments or other outside influences, vary the flavor from the exquisite delicacy of the semi fluid Brie down to the odoriferous Limburger, or to the insipid skims. But however much this flavor may be modified, it always has beneath its modifications a characteristic flavor of cheese, which distinguishes it as cheese, and without which it would not be entitled to that name. All the flavor of cheese lies in its fatty matters derived from the milk, and the peculiar flavor they assume depends upon the modifying influences brought to bear upon them. The casein is, in all its stages, tasteless. When we dissolve out the fats with ether, we carry away all its flavor, and the cheesy matter is left entirely insipid.

Thus, in the dietaries of the world, cheese has two absolute values, one as food, and another as a luxury. It is on the condition of perfect and easy digestion that its inherent value as food depends, and just in proportion as it fails in this respect does its value depreciate. It is this digestible condition, this availability of the whole or a part of the substance of the cheese for food, which the expert should be able to recognize, and the judge to regard, when he is called upon to decide upon inherent value. Its value as a luxury depends on the development of cheesy flavor in its fats, as described. If this has been well developed, and gives a clean, full and pure taste of cheese, uncontaminated with sourness, bitterness, taint, or other offensive or undesirable flavor, the pleasure which it will give the palate will cause the cheese containing it to bring a price above its value as food, just as perfumery brings a high price for the pleasure it gives the sense of smell. The fats in cheese enter into its food value also, for which they are always in a condition to be availed of. But it is the degree of flavor and its purity given to them in the ripening of the curd, which is the measure of the value cheese may have as a luxury, and is what experts should be able to appreciate, and judges to value, when called upon to unite it with the food value of cheese.

A few words illustrating the practical bearing of the condition of casein upon the value of cheese as food, may not be altogether out of place in this connection. If a cheese is curdy and tough in texture, as is usually the case with skim cheese, it will to the extent of its toughness, be insoluble and indigestible, and to the same extent useless as food. It is not uncommon to find a tough skim cheese which has more than half of its weight consisting of casein, with less than 10 per cent. of that casein digestible, the rest of its cheesy matter being a total loss so far as food is concerned.

There is a difference of opinion about the value of skim cheese as food. Some suppose that because analysis shows it to contain a much larger per cent. of albuminoids than whole milk cheese, sometimes as high as 50 to 60 per cent., that it is worth more for sustaining the framework of the body than full cream cheese. But chemical analysis is not always reliable as a guide to the value of food, especially for human use. It is reliable in one respect. The nutritive value of food cannot go beyond the amount which analysis shows a food to contain, but it may fall a great ways short of it To illustrate: The analysis of a raw potato and a cooked one will be alike as to albuminoids, but unlike in their food values. A cooked potato is worth a little something for human food, but the raw one is worth nothing. Difference in condition is everything. Hair, hoof and horns have a composition similar to flesh, but they are indigestible, while the flesh is easily digested. So grass contains three per cent. of albuminous matter, and apples less than one. I would like to to see the man who could get a better living by eating grass than by eating apples. As casein in the form of curd is insoluble and indigestible, and as the casein in skim cheese remains in the form of dried curd, very little of it ever being changed from a curdy to a cheesy condition, the casein in the uncured skim sustains the same relation to the well cured whole milk cheese, that the hoofs, hair and horns of a bullock do to his flesh, or as a raw potato does to a cooked one, for human food. An ox might make as good use of a raw potato as a cooked one, and an alligator might make a savory meal out of hair, hoofs and horns, and possibly out of a tough leathery skim, but they would all be very poor food for humanity.

These statements are borne out by experiments in the artificial digestion of cheese. Last winter it occurred to me that the value of cheese as food might be clearly approximated by digestion with pepsin. As the stomach of the omniverous hog has an action very similar to that of the human stomach, pepsin derived from swine, with a little addition of hydrochloric acid, a little of which is found in the human stomach, would furnish an imitation of human gastric juice so near like the genuine, as to make experiments with it useful in determining the behavior of cheese in the human stomach, and its approximate value for human food. The gastric juice of the hog is more powerful than that of the human, and if cheese failed of digestion under its influence, it would certainty fail in human digestion. I presented my idea to Dr. F. E. Engelhardt, of Syracuse, who, as perhaps some of you know, is one of those accomplished chemists for which Germany, his fatherland, is so celebrated. He was favorably impressed with the suggestion, and the value which would be likely to result from a series of experiments in that direction, and very generously offered to join me in carrying it out, and to donate his time and services without compensation, and, in the same generous way, the American and Excelsior salt companies placed their laboratory with all its contents at our command; even sent Dr. Engelhardt to New York to collect such samples as he could obtain, and we went to work, Dr. Engelhardt giving personal supervision to all the work, and doing most of it with his own hands. We have made fifty experiments in digesting cheese, and nearly as many analyses, besides a number of experiments with butter, devoting all the time we could possibly spare during the year, and including in our work every variety of cheese we could find in the markets of New York and elsewhere. Quite a variety of samples obtained at the late International Fair have not yet been worked up. In each case of artificial digestion, 100 grains of cheese were treated with 10 grains of Smith & Pitkin's saccharated pepsin, extracted from the stomachs of swine, in four ounces of distilled water containing 24 drops of hydrochloric acid, the whole to be kept at blood heat and shaken and observed every fifteen minutes or oftener, until change ceased. I have constructed out of the experiments, a table in which there is a brief description of each variety of cheese treated, with an analysis showing the water, fat, casein and ash it contained, with brief remarks upon the same.

The table is too long to be read here. It will be appended to my paper and appear in the published report, where you can examine it more at your leisure. These experiments, which so far as I know are the first of the kind, were exceedingly interesting and instructive, and a fuller notice of them than I can now give would be very desirable here, but I must be contented with a brief notice of a few items they have brought to light, and leave the rest for yourselves to study out. The leading points developed by these experiments are:

1st. That the older, or more thoroughly cheese is cured, the more rapid and complete is its digestion. This was one of the first things which struck our attention. It was found invariably, that just in proportion to the extent of the curing, was the part of digestion accomplished, and that cheese from thirty to sixty days old, fell so far short in the completeness of their digestion, as to occasion a serious loss in their value as food.

2d. That the presence of cream in the cheese is an essential to immediate and perfect curing, and hence to perfect digestion. The effects from the loss of the fats in the milk were always plainly seen, and were so marked as to enable the experimenter to make a close prediction of the amount of fat which analysis would show.

3d. That the less the natural action of the rennet in ripening the curd and curing it into cheese was allowed to be impeded by the presence of acid, the more complete was the digestion and the sooner was it accomplished, and the greater was the food value of the cheese. The deleterious effect of acid in the curing and digestion ran through all our observations, and have an important relation to its utility as food.

4th. That just in proportion to the completeness of curing and digestion was the fat acted on by the pepsin. Where the cheese was well cured, and the digestion easy and perfect, the fats in the cheese appeared to be perfectly digested, and to enter as perfectly into the constituency of the chyme as the casein itself.

In other cases, as in the digestion of skim cheese, the fat is not only not acted on, but is not even separated from the cheesy matter at all. Since it has always been held that fats were never digested in the stomach, the observations in the behavior of fats under the action of pepsin were unlooked for and become an interesting item in the physiology of digestion. In regard to the first point, it will be sufficient to refer to Nos. 11 and 12 in the list, No. 11 being a Young America, as it is called, a small factory cheese made in the usual way with an acid curd. In this, the digestion was imperfect. The fat and cheesy matter were imperfectly separated, and a considerable of the latter came to the top with the fat, while another part of it separated and fell to the bottom. No. 12 was a sage cheese, the sage helping the cheesing along. It was well cured and appeared ripe, rich and old, though it had just about the same age as No. 11. It required but 1¼ hours to make a digestion that was perfectly natural and complete — leaving no loss whatever, while No. 11 required 3¾ hours to effect an imperfect digestion, and then left not less than 20 per cent. not acted on. For an illustration of the difference between skims and full cream cheese, compare Nos. 8 and 40, both about the same age. No. 8 is a half-skim, having over 20 per cent. of fat in which digestion stopped at three hours and forty-five minutes with one-eighth of the casein only dissolved. No. 40 is an American Cheddar, full cream, in which the digestion of the whole cheese was complete in seventy-five minutes.

In respect to the third point — the difference in the digestion of acid and no-acid cheese, where other conditions are similar — the difference in digestion was always very plainly in favor of the no-acid cheese. And as this point is one of great practical importance, it would be very interesting to trace it at some length, but it must suffice here to refer to Nos. 38 and 39 in illustration of this matter. These two numbers were made in Dr. Wright's factory, and were from the same vat of milk, which was curded and worked in one vat till the whey was well separated. Then one-half of the curd and whey were dipped quickly into a separate vat which stood handy by, and which had been warmed to receive it. The part so dipped out had the whey run of at once while it was sweet, and the curd left to drain and pack in the upper end of the vat, and was covered to keep it warm, and turned occasionally to keep all parts warm alike. When it would string on the hot iron an inch to an inch and a half, it was ground and pressed. The other remained in the vat where it was made until it responded distinctly to the hot iron, when it was ground and put to press. Both were salted and treated alike, except that one was kept warm, and ripened *out of the whey* till the curd would spin on the hot iron, and the other was ripened *in the whey* till it would spin, and the whey became sour.

Both, after pressing, were kept in the same room and alike till they were about thirty days or a little more of age, when samples of each were taken for digestion. Being not yet properly cured, the digestion was slow, and the no-acid curd digested in three hours; the acid, in three and a half. In the former, 60 per cent. of the curd was dissolved, when the action stopped; in the latter, 30 per cent. In the former, the fat was well acted on; in the latter, very little, and it contained 21 per cent. more acid than the former.

Nothing could well be more decisive in regard to the use of acid in cheese-making, whether put in at the start or developed in the whey in the process of manufacture, than the personal inspection of the action of pepsin on cheese, as the digestion was going on. The digestion of the acid cheese always moved slow, and left a sediment of undigested curd which would require days and even weeks to dissolve, showing invariably a loss in the nutrient property of the cheese. Another striking fact was that the chyme was very sure to be faulty, which led to unfavorable inferences in regard to its effect on health.

For a sample of the fourth point, we may compare No. 6, in which the whey was not well separated, and which after four hours digestion was still progressing slowly, but the fat and casein were not sufficiently acted on to separate them, and both came to the top together, with Nos. 31 and 32, in which, in less than half the time, the whole substance of the cheese was changed to perfect chyme.

It was a striking fact which ran all through the series of experiments, that just as soon as the curd which had become "cheesed," so to call it, was all digested, the action stopped and the undissolved curd came to the top or fell to the bottom, according as it was or was not connected with fat. The precipitate, when examined, was found to be pure curd, as green and uncured as it was when it was put to press. This curd would, undoubtedly, in the course of time, also have been cheesed in the pepsin, and been digested like the rest, but the operation is very slow, and requires so much time that, if it were going on in the human stomach, it would pass out of that organ before the work would be accomplished.

These remarks upon the inherent value of cheese, if not as full and clear as desired, will, nevertheless, I trust, be sufficient to point the direction in which it lies, and enable the hearer, upon a little reflection, to suggest for himself such further evidence as to settle the point fully in his own mind. And assuming that we know where inherent merit lies, we will now look after the best means of reaching it.

Having thus briefly touched upon the intrinsic merit of cheese, we will now turn to its manufacture and see if we can trace the means of producing it.

We make cheese of milk and rennet, modifying the result with salt, heat and moisture. Rennet is the principal agent we use in converting milk into cheese, and it must be somewhat interesting to inquire in what way it acts to produce such a wonderful result. What action may we reasonably expect it to exert? It would seem that a little observation and reflection would only be necessary to satisfy the thoughtful cheese-maker that the action of rennet is emphatically the action of digestion. When he observes that its efficacy is derived from steeping an animal stomach in a liquid to which it could be expected to have nothing but gastric juice to impart, he must discover a sufficient reason for *suspecting*, at least, that digestive action would be concerned in its use. But when he observes further that the milk in his cheese-tub goes through the same changes slowly that milk in a calf's stomach does rapidly, becoming, first, a soft curd, then a hard one, and that before it finally dissolves into a liquid and passes out of the stomach, it assumes the plasticity of cheese, and takes on its flavor and odor also, he can hardly avoid the conclusion that the successive changes which in milk and curd follow the use of rennet in making and curing cheese, are, as far as they go, the work of slow digestion. A common sense view of his work will make it plain enough that the principal agent in cheese making is digestion, but the precise way in which it does its work may not be so clear.

A little illustration may help to clear up the mystery perhaps. If we take some warm water in a glass or earthen dish, and stir into it some pepsin, which we may think of as dried gastric juice, and then put in some albumen in the shape of coagulated white of egg, the egg will become dissolved. Now the egg is made up of atoms of albumen adhering to each other, and each atom in the mass is made up of exactly the same material. It is composed of carbon, oxygen, hydrogen, nitrogen and sulphur, exactly in the same proportion in each distinct atom, and this exact proportion must always remain the same, or the atom would cease to be albumen.

If any one of the elements of which it is composed were to be dropped out, or the relative proportion of any of the constituent elements was to be changed, the atom would be at once and forever destroyed as an atom of albumen. In the digestion of the egg no such destruction takes place. All that is done is simply this: the atoms of albumen have had their attraction for each other so weakened that they cease to adhere to each other any longer and they fall apart and lie suspended in the water, and in this situation are ready to be used in building up the framework of an animal, or as we say, are ready to serve the purposes of nutrition.

This is all that has been done, and is all that is done in the digestion of albuminoids in general. Their atoms are simply made to let go of each other, and of whatever else they may be attached to, and to fall apart, or as we say, dissolve. This is stomach digestion, and is exactly analogous to the action of rennet in making cheese. I have spoken of rennet as if it were a liquid. The active agency in rennet is not a liquid; it is a solid, and is made up of very minute animals cells which are formed at the bottom of the almost immense number of little tubes with which the lining membrane of the stomach is filled, and when we soak a dried stomach they come out and fill the water or other liquid with their presence. When we put some of the steepings of a rennet into the milk, we put in a certain quantity of these little round cells, and they at once go to work upon the casein of the milk and nothing else. The first effect they produce is to make the atoms of casein (which are so near like those of albumen that they are very difficult to distinguish) lose their attraction for the sugar and water, with which they are connected, without destroying their attraction for each other. So as soon as they let go of the sugar and water, which has held them apart, they are at liberty to adhere to each other, and do so, and in this way form a curd. So you see the development of curd is the beginning of seggregation or digestion.

The rennet cells are themselves enclosed in the curd they have formed, and if we give them anything like a fair opportunity, they will keep exerting their influence upon the atoms of casein till their attraction for each other becomes so weakened, that, if we were to put the mass in water, the atoms would fall apart or adhere in very small clusters. If, when the casein has reached this condition, we were to treat it as we did the white of egg, it would be very soon as perfectly dissolved and as ready to be used for nutrition, and it would do the same if we were to put it in a human stomach in common health. Now this is just what we accomplish when we make cheese, if we make it right. The curing of cheese is only giving the rennet cells time and opportunity to detach the atoms of casein from each other. And this is why the plasticity of cheese is so important. And I trust you will understand why a well cured cheese dissolves so perfectly and easily in the human stomach, and is so much more nutritious and wholesome than a cheese which has not been well cured. The human stomach, which cannot accomplish the work so well as that of the young suckling, has the work of digestion nearly done in one case, and in the other only begun, and this makes all the difference in the world in utilizing cheese.

## PHILOSOPHY OF CHEESE MAKING.

(Continuation of Prof. Arnold's Address.)

You have seen, gentlemen, that all we want in making cheese is to give the rennet a fair chance; and all we want for that is to give it moisture and warmth and keep objectionable things out of the way. Now in the process of making cheese, we need make no material changes from the usual mode. We may use what is usually within our reach and work satisfactorily.

In the first place I want to state as a general fact, that after a series of experiments running through the summer of 1877, I settled the question that acids of every kind in the presence of gastric juice from the calf, weaken it so that it does not perform its full functions. Now, then, if we are going to make cheese, let us act in accordance with this principle. We may begin and make cheese as you are in the habit of doing, until we approach the time for drawing off the whey, according to the customary manner of making cheese. Draw the whey while it is sweet, say half an hour or twenty minutes sooner than usual. Be sure and draw it while it is entirely sweet, then tip the vat and draw the curd up on each side of the vat so that the whey will run off readily. Let it lie there until it becomes tough enough to handle, then cut it into strips and lay each alternating piece upon the other so it will drain and keep warm. Cover it up, and turn it occasionally so all parts will keep warm alike, and let it lay there until it is done. The object is to let the rennet digest it, for that is the legitimate work of the rennet.

A gastric agent obtained from the rennet has been carried into the curd and it can only do the work of digestion. It will tend to make the curd soft and plastic, so it will dissolve. If nothing is put there to hinder it, it will go on doing its work. Curd packed up in this way and kept at ninety-eight degrees, will digest, or, if you please, ripen, as much in one hour as it will in the curing room in a week. You may let it lie as long as you please. It is out of danger when you get it out of the whey. It is endangered by the development of fermentation only when it lies *in the whey*. But when *out of the whey*, it is so entirely out of danger that it may lie there until you are ready to put it to press. You may ask whether it don't develop acid. If the milk is not fresh and sweet it will, but there is very little effect from this, when compared with what there is if the curd is allowed to lie soaking in sour whey. It will do no harm to let it lie there as long as desired. The ferments which happen to be in the milk are mostly removed with the whey, and are being carried away by the whey as it continues to drain off. On the other hand, if the curd is permitted to be in the whey, these ferments are developed and increased; and although the curd itself does not ferment, it feels the effect of the fermenting whey, which reacts upon it and changes its character, and the acid, as before stated, weakens the action of the rennet and impairs its ability to convert the curd into cheese. You can, by leaving on the whey, pickle a curd so it will be hard and solid; but you cannot make a fine flavored cheese of it, because the cheesy flavor will not be well developed. It causes the curd to contract and helps to separate the whey, but forms the curd into a hard mass. When you put a piece of acid cheese in your mouth and let it lie there until it falls to pieces, you will find it don't dissolve but crumbles, and feels on the tongue like meal. They are like atoms of curd stuck together, with only a defective cheesy flavor. This same thing occurs in the riper cheese. In all our experiments in digesting cheese, the acid cheese when treated crumbled into atoms and fell to the bottom of the vessel in little pieces, destitute of cheesy flavor.

You may ask whether bad milk can be worked up in this way as well as any other. I answer, better. When the curd is separated from the whey, the faults of the milk nearly all go with the whey and the curd is freed from them. It must be evident that it would make a great difference whether you are carrying off bad qualities or whether you are accumulating them around your curd, and when it is ripened into cheese that difference will be very apparent. Then there is another consideration in this matter of getting the curd out of the whey and letting digestion act instead of fermentation. Now digestion disposes of ferments, and it is about the only way to dispose of them. They certainly will not dispose of each other; at least the developing acidity does not dispose of any germs of putrefaction or fermentation that may exist in the curd. It may smother them down for a time. But the acid is an animal product, and like all animal substances is perishable; and when it fails, putrefactive fermentation springs into activity, and the cheese goes to swift destruction. This is what makes an acid cheese so short lived. In the other case, where we have kept the acidity out of the whey, and where we have done the work by digestion by the simple action of the rennet, we have got ahead of the ferments and have destroyed them. How digestion disposes of ferments may be illustrated by an example.

I have in mind an instance where a herd of cows drank from a trough which contained animalculæ and spores of fungi. They ran for a long time without feeling any effects from the bad water, until one being oppressed by the heat of the sun, became a little weak. She then began to show the effect of the foul water when, from weakness, she ceased to digest the foul spores. The reason the others did not show it was because they digested the foul matter, and this often occurs. Cows can eat carrion with impunity, because they digest the bacteria which produce the putrefaction, and other animals often protect themselves from noxious matter by the same means. By digesting curd to a sufficient extent, ferments which would otherwise be injurious may be digested and destroyed. In working bad milk, it has been my habit to allow the curd to lie in the vat, covered and warm, until the digestion or cheesing process was very far advanced. It is not in such cases enough to let the curd string an inch or an inch and a half, but it may lie until it strings six inches and do no harm whatever. Curd, it should be remembered, may string on the hot iron from cheesing, as well as from sourness, and you must not confound these two, for they denote different conditions of the curd. When the curd strings from cheesing, the thread is thick at its ends; but when it strings from sourness, the string is all the way alike with very fine threads. When it has been carried thus far, more salt should be used to check the cheesing and prevent the curd from ripening sooner than desired. To use it right up, it would not be necessary to increase the rate of salting; but if you wish to keep it, salt it enough to stay the curing, and so it will dry down, and remain firm and solid.

If you want to make the best cheese, you must have the best milk. Now if you have milk that is perfectly pure and sweet, and you try it in this way, the cheesing will go on without acidity ever appearing at all; not a particle of acidity will develop; it will string an inch or an inch and a half without becoming sour, and when you put it to press and salt it, you will have a rich, delicious cheese that everybody can eat, and everybody will pay you a high price for. Everybody likes this cheese. A man in Michigan made cheese this past summer after this process, who had been in the habit of making cheese on the acid plan, and had all the best skill to work his factory, but never made a satisfactory cheese until he adopted this plan, after which he never lost a cheese, and did not have one that was imperfect all summer, nor one but what sold from one cent to one cent and a half more than any of his neighbors. A gentleman who bought one of his cheese down at the International Fair, said he could eat it just as he could bread, and it was the first cheese he could safely eat for years. All the cheese he had there on exhibition were sold right off, and gave good satisfaction. Our acid cheese have been so faulty and indigestible, and so unpalatable, that our people have disliked it. Now what we want is to come back to this plan of making cheese by rennet instead of by acid. That is all there is to do. We just want to give the rennet a chance to work, and then season it to our taste, or season it so it will keep, and then the work is done. Perhaps I ought to remark in this connection, that cheese made without acid requires about 25 per cent. more salt than acid curds. The acid dries down the curd and makes the cheese dry and hard, with less salt than when acid is not used; hence, if more salt is not used it will keep on curing so fast that it will soon get over-ripe. I have ran over the main ground and the difference between the acid and no acid plans, or between making cheese with rennet or making it with acid, and now I will leave the subject here for you to ask such questions as I have not anticipated.

Q. How much salt would you use?

A. About 25 per cent. more than we use in the other; or, say 3 pounds where 2½ were used before.

Q. Would you use more rennet?

A. Use just the same amount you did before. I would not advise you to make any further change than I have stated above.

Q. Do you use a curd mill?

A. Yes, sir; you must do that.

Q. How long do you leave the curd for the whey to drain off?

A. It is necessary to get it out so it will not be sharp. The only trouble in this method is to keep the curd warm, but when it is out of the whey it does not harm it to stand.

Q. What do you cover it with?

A. I have had to cover it with a cloth. Some use a board cover.

Q. Do you find any difficulty in keeping it warm?

A. Not in warm weather. In cold weather there is some trouble. The best arrangement I have seen was a board cover made like a box, only not so high, which was set on the vat.

Q. At what temperature did you keep the curd?

A. At blood heat, or as near it as possible.

Q. Has curing anything to do with the cheese?

A. Certainly it has.

Q. What would be the effect to cover that curd with warm water?

A. I think it would be good, but have not tried it, and would not dare to say what would be the effect. I know that in some sections of Europe they have practised that manner of keeping the curd warm, and make splendid cheese out of it.

Q. Do you get as good a yield?

A. Yes, it is just as much.

Q. Do you grind the curd more than once?

A. No, sir; not unless the milk was faulty.

Q. Why do you call it no-acid plan?

A. That grew out of the fact that there was no acid in the whey when it was drawn off.

Q. Does acid generate in the curd?

A. It will if there is any change in the milk toward acidity before applying rennet.

Q. I have made cheese on that plan, in hot weather, for the last four years, and have never made a cheese but what acid developed in that cheese.

A. That is the usual way with factory cheese, because the milk is approaching acidity when it gets to the factory.

Q. Is the curd itself sour?

A. Cheesy matter does not sour. The sourness belongs to the whey that is in it.

Q. Did you use the hot iron test?

A. Yes, just the same as in the other case. It is as good an index of cheesing as it is of souring. You can generally tell between them. When you get a string from cheesing, the threads will string out fine in the middle and be thicker at the ends; but from sourness, it strings out all the way alike, with very fine threads.

Q. Which has the best keeping quality?

A. The no-acid cheese.

Q. At what temperature would you press?

A. It ought to be down as low as eighty. If much lower than eighty, you are liable to have angular holes in your cheese unless you press very hard.

Q. What kind of curd mill do you consider the best, one that cuts or grinds the curd?

A. One that cuts, if I had to grind by hand. Otherwise, there is no material difference.

Q. Do you salt in the vat?

A. It does not make any difference. I most always salt in the vat, as it saves labor.

Q. Have you ever tried your method of cheese making in the English market?

A. The shippers have taken it, and pay a high price for it.

Q. You find no prejudice against it?

A. Never; there are some cases in which the country buyers object to it because it is different from what they have handled. They remind me of some boys who once drove a span of unbroken colts to my father's house on a visit. As the boys were my guests, I took the colts to the barn, blanketed them and gave them some oats; when, to my surprise, they commenced eating the straw on the floor. They did not know what oats were, having never had any in their lives. Just so with these country buyers. They knew what the acid cheese was, but were afraid to handle the finer no-acid cheese for the same reason that the colts refused the oats — they knew nothing about it.

Capt. Tuttle — Q. What per cent. of fat in a ton of whey?

Arnold — There is about one-half pound in a hundred; you can figure the rate per ton.

Q. About what per cent. in skimmed milk?

A. About one per cent.

Q. In feeding cows dry food, ground, what per cent. is wasted?

A. I am unable to state, precisely. There is considerable waste, and my judgment would be that about twenty-five per cent. of it is wasted.

Q. Did you ever experiment upon that?

A. I did some years ago, but did not preserve the record. Later I have examined meal found in the different stomachs, under the microscope, and found there was a large waste, and my judgment would be that about twenty-five per cent. was undigested, and of course lost.

Q. What is your opinion of feeding ground food?

A. I have got better results by grinding the feed very fine, and moistening some coarse fodder and then sprinkling fine meal upon the coarse fodder. Then it goes into the first stomach and is soaked up thoroughly and receives the aid of the gastric juice and goes back to the mouth and is remasticated, and a more perfect digestion is obtained. When they eat dry food it goes directly into the third stomach, and I have found it in a very few minutes in the fourth stomach. It would seem almost impossible that it would go there, but it does, and in passing through a single division of that compound organ it is not perfectly digested.

Q. Would you recommend cut feed?

A. Yes, I would recommend it; but I have not found the great benefit some claim.

Q. Is there any advantage in scalding it?

A. Yes; I think there is a great advantage.

Q. I would like to ask if a cheese made in this way would be hard enough for commercial purposes?

A. Oh, yes; no trouble in making them hard as you like.

Q. Your system, as I understand it, is our old mother system, of making the cheese and putting it in the press sweet.

A. No, we don't put it at once in press as they did. When our mothers made cheese, they took the whey off when it was sweet, and salted the curd and put it right in the press. We allow it to lie out of the whey and ripen, and that process they omitted, and that is where they missed it. While they drew the whey sweet, and salted and pressed at once, our plan is to draw sweet and let the curd lie free from whey, and warm, two or three hours to ripen before we salt. When the salt is applied to the curd, the temperature drops from six to ten degrees if there is much moisture in it, and that will check the further separation of the whey. While the unsalted curd is lying warm in the vat, the action of rennet is steadily going on, and separating more and more whey out of it, as you can see by the stream of whey which is constantly running from it. What we want to make a firm cheese is to keep this separation of whey going on till enough is exhausted to give the consistency we desire. If we do not expel enough whey to secure this result, the cheese will be soft and sharp in flavor and short lived.

Q. What would be the result of that getting cold?

A. It will stop the separation of the whey. It separates best at ninety-eight or one hundred degrees. That is the great trouble with cheese-makers, that they either salt the curd too quickly, or put it directly into the press before the whey has had time to separate.

Q. Don't cheese, in that state, take on some degree of acid?

A. Yes. It will get sour a little before it is ripe enough to put to press, usually.

Q. How do you keep the outside of that mass warm?

A. I do it by covers, but think that something like a rotary churn, that we could throw the curd into and throw it one-quarter of the way around every fifteen minutes, would be better. The presence of the whey is a detriment, and the faster we get rid of it the better; and if we could devise some means like a box churn, we could remove the whey at once, and if we could revolve it in an inclosed space we could keep it warm and save a great deal of labor in turning the curd and getting rid of the whey quickly.

Q. Suppose you find the curd in the whey floating early, what do you do?

A. Let it float.

Q. Do you draw the whey the same?

A. Yes. Draw it a little earlier, and let it lie longer to ripen in the vat and then salt a little higher.

Q. Is it not a fact that the acid develops in the curd when the curd is taken from the whey, just about in the same proportion as when it is left in the whey? I have made cheese in a similar way during hot weather, and in that case I let the curd pack down in the bottom so that it could get all the heat.

A. Acid does not form as readily in the curd as out of it. After the whey is removed the curd remains sweet longer, but the whey will become acid in it after a while. It will taste quite sharp of acid when it passes away. It develops quicker when the whey is exposed to the air than when it is not. When you let it lie out of the whey it is the action of the rennet that separates the whey, and in the other case it is the action of the acid. I have tried this experiment many times, and have found that where you let a quantity of acid develop in the whey and lie on curd, it weakens the rennet so that the curing of the cheese is retarded. If that whey is out of the way it don't seem to have the same influence, for as soon as the whey is removed it goes to cheesing. In the other case it is pickled.

Robinson, of Bristol. — After listening to Prof. Arnold last evening, it occurred to me that Mr. White's experiment with sour milk corroborates the professor's theory of the non-acid plan of manufacturing cheese according to Mr. White's experiment and the commission man's (Mr. Bogardus) judgment. When Mr. White told him that he had two cheeses that were made of sour milk, Mr. Bogardus said he wished that all the cheeses were made of sour milk. Now Mr. White's plan of making that sour milk cheese was to run the whey off immediately, as soon as the curd was formed; and that, I believe, is the professor's plan. If that is so, it proves that the best system is to run the whey off as soon as the curd is properly formed. In Mr. Cheever's paper, he made some objections to sour milk. But according to Mr. White's experiment, as he related it yesterday afternoon, it makes better cheese. So it is not of any great importance if the milk does get a little sour, if you can make better cheese; and if Mr. White's experiment is correct, that is the fact. I believe hardly a man works upon Prof. Arnold's plan. They all work on the acid plan of cooking it in the acid whey. I never made cheese, but have produced some milk and have carried the milk to the factory; and if it is a fact that we can make better cheese even if the milk is changed, it is going to be of great value to us.

Prof. Arnold — Mr. White has not the idea exactly in drawing the whey immediately. That is not advisable, because if you do, the curd is so perfectly solid that the whey will not get out of the curd perfectly, but will stand in little pools and remain there and get sour. Mr. White's plan was to wash the sourness out immediately with warm water. He draws the whey at once and replaces it with warm water. He changes that water frequently, and it would thus be an easy matter to wash the acid out and make a sweet curd of it. I have heard of its being done, but have not tried it. It may be a good way if the water is frequently changed and kept warm. I have tried his cheese and find it lacks flavor, but is very fair cheese.

## TABLE OF EXPERIMENTS, SHOWING DIGESTIBILITY OF DIFFERENT KINDS OF CHEESE.

By Prof. L. B. ARNOLD.

| No. | DESCRIPTION. | Water. | Fat and extract. | Casein. | Salts. | Time of digestion. | REMARKS. |
|---|---|---|---|---|---|---|---|
| 1 | Cammenbert; small French; about 4 oz.; soft, semi-fluid; resembles the French Brie. Pungent cheesy taste; apparently almost digested..... | 50.41 | 20.55 | 23.49 | 3.52 | *h. m.*<br>2 00 | Change ended 1 h. 45 m. Digestion very perfect. Natural odor of human stomach. |
| 2 | Good imitation of Brie; weighs 4 to 5 pounds; consisting of Borden's condensed milk...... | 41.50 | 36.15 | 17.63 | 4.70 | 2.00 | Like No. 1. |
| 3 | American imitation of Neufchatel; soft Cammenbert; with acid; very small cheese..... | 37.45 | 34.60 | 24.04 | 3.90 | 1.00 | Digestion rapid but imperfect. Cheesy matter not much dissolved. |
| 4 | American imitation Pont L'Eveque; size 3x4½ by 1 in.; rectangular; soft, delicious flavor.. | 26.02 | 50.80 | 20.64 | 2.54 | 0.45 | Nearly perfect. No further change in 18 hours. |
| 5 | Pont L'Eveque; genuine; like above; but texture tough instead of short; less cheesy and more acid, and like Limburg............... | 44.57 | 21.80 | 30.36 | 3.97 | 4.00 | Scum of casein spotted with yellow oil. Casein also precipitated. Not done in 4 hours. Smells of tactic acid. |
| 6 | Full cream; sharp and poor from excess of whey retained; acid make; Amer. Factory.. | 36.72 | 29.18 | 30.95 | 3.34 | 4.00 | Heavy scum of fat and casein. Not done in 4 h.; 18 hours after, little change. |
| 7 | Philadelphia hand cheese; no rennet used; sour skimmed milk; 3 to 4 ozs............. | 33.14 | 1.86 | 58.66 | 6.03 | 4.00 | Considerable cheesy sediment; not done in 4 hours; smells strongly of taint and acid. |
| 8 | Skim cheese; very porous and poor............ | 35.31 | 20 36 | 39.26 | 4.79 | 3.45 | Curd mostly undissolved, with odor of cheese and acid not much like digestion. |
| 9 | American imitation of English dairy, fine and rich.................................. .... | 27.95 | 36.04 | 36.76 | 5.24 | 3.45 | Tolerably well done, with dirty sediment. |
| 10 | American Cheddar; whey drawn at beginning of acid ................................ ... | 30.92 | 34.10 | 30.60 | 4.36 | 1.00 | Considerable scum of fat and some cheesy matter, with coloring. Well done. |
| 11 | Young America; acid make...................... | 32.97 | 31.13 | 31.78 | 4.13 | 3.45 | Chyme turbid and dirty looking. Scum of fat and cheesy matter, heavy. |
| 12 | Sage cheese; mottled, very porous and soft; ripe, rich and good flavored........... .... | 33.32 | 28.62 | 33.32 | 4.23 | 1.15 | Digestion very complete. |

*Table of Experiments, showing digestibility of different kinds of cheese*— continued.

| No. | DESCRIPTION. | Water. | Fat and extract. | Casein. | Salts. | Time of digestion. | REMARKS. |
|---|---|---|---|---|---|---|---|
| | | | | | | h. m. | |
| 13 | Gouda; Holland; old and fine | 21.90 | 24.81 | 46.95 | 6.32 | 2.00 | Imperfectly done. |
| 14 | American Limburg; fine, with characteristic odor | 23.26 | 34.98 | 35.05 | 6.69 | 2.15 | Digestion good, but smells awfully. |
| 15 | American Limburg; 2d quality. Less Limburg and more cheesy odor | 35.65 | 30.85 | 27.57 | 5.91 | 1.30 | Well done. |
| 16 | Edam; Holland; nearly fine | | | | | 3.45 | Well done. |
| 17 | Edam; from Holland | | | | | 1.15 | Not so well done; slower diges'n than above. |
| 18 | ¼ skim from Illinois; summer made; fair goods | 26.72 | 32.65 | 36.16 | 4.46 | 3.45 | Chyme dirty looking and turbid. |
| 19 | Edam; same as 16 and 17 | | | | | 3.45 | This had 12 drops phosphoric acid added. |
| 21 | Sapsago; color green; known also as Krautzer kase; Swiss cheese without rennet; preserved with aromatics; not cheesy; 6 oz. | 13.30 | 15.52 | 57.59 | 13.57 | 3.45 | Large sediment of curd. Digestion imperfect. |
| 22 | Leyden, or Comiju Kaas, from Holland; highly aromatic | 25.44 | 6.48 | 58.45 | 9.60 | 3.30 | Large sediment. Digestion imperfect. |
| 23 | Chester; English; old and ripe; natural color | | | | | 1.15 | Nearly complete. Good. |
| 24 | Holland cheese; specific name not known, half-skim; well flavored; rich appearing | | | | | 3.00 | Considerable undissolved matter at top and bottom. |
| 25 | American factory; full cream | | | | | 3.30 | Very complete. |
| 26 | Poor skim cheese; hard and dry; factory make | 33.15 | 2.08 | 58.94 | 5.14 | 4.50 | No fat on surface. Smells of decay. |
| 27 | Factory cheese; fine appearing; sharp from retention of whey | 32.86 | 33.90 | | | 3.30 | Fat acted on by pepsin. Digestion very complete. |
| 28 | Same as last, but appears poorer | 37.29 | 23.09 | | | 3.45 | Not quite so good as above. |
| 29 | Pineapple; not enough to analyze | | | | | 4.30 | Seven-eighths of the curd dissolved. |
| 30 | American imitation Muenster; a German cheese full of fine holes; curd sweet | | | | | 2.00 | Curd all dissolved. |
| 31 | Fine American dairy; old, dry and crumbly; cheesy flavor very full | 22.06 | 28.34 | | | 1.00 | Curd nearly all dissolved in twenty minutes. Some large lumps remained one hour. |
| 32 | Imitation English dairy; fine old | 25.44 | 34.45 | 35.35 | 4.50 | 2.00 | Complete. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 33 | Factory half skim; resembles Switzer kase in porosity | 32.36 | 20.13 | ...... | ...... | 3.00 | Curd all dissolved, but chyme not perfect. Milky. |
| 34 | Parmesan: Italian skimmed; seasoned with aromatic herbs | 23.02 | 12.49 | 55.85 | 8.14 | 2.00 | Chyme cloudy. Imperfect. |
| 35 | Roquefort: French; old | 28.36 | ...... | ...... | ...... | 2.00 | Perfect. Fat digested. |
| 36 | Roquefort; newer | 28.87 | 33.70 | 28.82 | 8.66 | 2.15 | Nearly perfect. Fat digested. |
| 37 | Factory cheese; fine, old; cheesy flavor very distinct | 21.02 | 39.46 | 33.61 | 5.62 | 1.30 | Nearly perfect. |
| 38 | Full cream Cheddar; no-acid; young; from vat divided | 35.84 | 22.74 | 37.87 | 8.53 | 3.00 | Sixty per cent. of cheese dissolved. Fat well acted on. |
| 39 | Full cream; acid make: same as above; vat divided; worked unlike | 38.11 | 22.45 | 35.74 | 3.69 | 3.30 | Twenty to thirty per cent. of cheese dissolved. Fat little acted on. |
| 40 | Cheddar cheese, from store in Syracuse; fine cheese; flakey | ...... | ...... | ...... | ...... | 1.15 | All dissolved. |
| 41 | Cheddar, from Dr. L. L. Wright, with phosphoric acid added; same as 18 | ...... | ...... | ...... | ...... | 3.45 | Delayed 45 minutes by acid. Chyme milky. |
| 42 | Skim; same as 23, with phosphoric acid added | ...... | ...... | ...... | ...... | 3.45 | Lost, as above, 45 min. by phosphoric acid. |
| 43 | Roquefort; old; same as 25, with phosphoric acid added | ...... | ...... | ...... | ...... | 2.15 | Put back by acid 15 minutes. Sediment double that of 25. |
| 44 | Imitation Switzer kase | 38.51 | 24.84 | 32.08 | 4.57 | 2.40 | Four-fifths digested. Chyme clear. |
| 45 | Genuine Switzer kase, or Gruyere | 48.60 | 21.29 | 23.58 | 6.52 | 2.30 | Similar to above; five-sixths dissolved. |
| 46 | Imitation Limburg | ...... | ...... | ...... | ...... | 3.10 | Four-fifths dissolved. |
| 47 | Imitation Limburg. Another cheese | 35.05 | 32.18 | 27.93 | 4.82 | 2.20 | Very little sediment. |
| 48 | Gruyere; genuine; imported; old | 28.35 | 29.16 | 36.60 | 5.89 | 1.30 | Chyme very clear. |
| 49 | Full cream dairy cheese | 35.93 | 27.18 | 32.85 | 4.03 | 2.10 | Thick layer of oil on top. Chyme nice. Little sediment. |
| 50 | Sapsago, or Krautzer kase; small green cheese; 6 ozs | 27.51 | 6.17 | 53.63 | 12.92 | 3.30 | Poorly digested. Large sediment. |

Convention adjourned until 9 A. M. Thursday.

THURSDAY, *January* 23, 9 *A. M.*

Convention called to order by President Dousman.

Chester Hazen offered the following resolution:

"*Resolved*, That the president of this association appoint a committee of three to confer with the executive board of the State Agricultural Society in reference to the premiums to be offered in butter and cheese at the coming fair, and that they be authorized to represent the association in this matter, and also any other fairs or exhibitions in which Wisconsin dairymen would be likely to exhibit their products."

Chester Hazen — Ladies and gentlemen of the convention, we are all well aware of the importance of holding dairy fairs for the exhibition of dairy products. Our State Agricultural Society some four years ago gave a very liberal premium list for dairy products exhibited at that fair — but hard times came on and the premium list was cut down. We have had only a partial exhibition, and we all know that we could have a better one. The State Agricultural Society would be glad to indorse any list that we might make — so we are interested in getting a good exhibition at our State Agricultural fair. I present this resolution so that this association can take charge of it and make a premium list that we would like to have indorsed by the State Agricultural Society and by this meeting.

N. D. Fratt — In regard to this resolution I think it would be proper for this convention to pass it; of course I can't speak for the State Agricultural Society only as one, but think they would be glad to indorse it and encourage the exhibition of the dairy products of our state.

W. D. Hoard — I am in favor of passing this resolution. The dairy fair held in Milwaukee was the first held in the state, and it gave an impetus to the dairy association and brought the commercial judgment of the great centres of the United States into juxtaposition, and that did us all a great amount of good. A gentleman suggested to me that it would be a good plan to have it happen at the same time with our annual meeting, and have that meeting held earlier in the year, say in November or December, when the dairymen have products yet unsold. I think if we enlarge this part of our annual convention it will prove of great value to us.

The resolution was adopted, and President Dousman appointed as such committee Hiram Smith, Sheboygan Falls; Chester Hazen, Ladoga; W. D. Hoard, Fort Atkinson.

## GENERAL DISCUSSION UPON CHEESE MAKING.

By D. G. CHEEVER, CLINTON.

We have all heard of the old recipe for cooking a hare, "first catch your hare." In discussing the question of cheese making, if we go back to first principles we must first catch the cow that supplies the necessary lacteal fluid, unless peradventure we think it wiser to "to get the cage" before we "catch the bird," or in other words, secure the pasture, meadow and stable before getting the cows.

*Pasture.* — To insure the greatest and best possible results in dairying, we believe the pasture and meadow should be factors of the first consideration ; the soil should be naturally dry and sweet, and properly enriched; well sodded with a variety of our best tame grasses, and abundantly supplied with pure water; all depressions should be drained, so that no pools of water can remain to become stagnant in the tropical heat of such seasons as 1878, tainting the milk before it leaves the udder. Wisdom dictates that shade should be provided to which the cow can flee during the extreme heat of the day.

*Meadows.* — Next to the pasture, the meadow or hay field is of the greatest importance; an abundance of succulent grasses should there thrive upon well cultivated and well fed soils. In the west we are, generally speaking, behind the New England dairymen in better judgment as to the proper time to cut, and manner of curing and securing the hay crop. They justly reason that the succulent and nourishing properties of grass are most largely developed when in blossom, and before the juices are concentrated and exhausted in maturing the seed; therefore they cut their grass at that time, cure it as much as possible in the cock to protect it from the withering and evaporating rays of the summer sun, and in many instances use a cloth cap or covering the better to protect it from the elements while curing, and carting it to the barn as soon as it is cured enough not to mow burn. In this way fodder is secured that almost perfectly supplies the place of the rich pasturage of the summer and autumn months. Cows thus fed need but little grain or other feed to keep up a generous flow of milk; their stomachs and bowels are constantly in a normal and healthy condition, their coats smooth and sleek.

*Stable.*— Having secured pasture and meadow to our mind's liking, our next thought, in a climate like ours, is about stabling, where warmth, comfort, light and ventilation can be best secured. My own ideal of a stable is a close made room on one side of the barn floor, or if in a basement, at one side of an hay alley, and twelve feet wide; the manger just two feet wide; the floor from the back side of the manger to the drop in the floor, four and one-half feet. I much prefer stancheons for fastenings, building the first one two feet from the wall and the others three feet apart. I make the stationary upright of 2x6 pine scantling and the movable part of the stancheon of 2x4, secured at the top by a drop or clapper falling to its place between the two horizontal pieces at the top of the frame. The space for the neck should, for the ordinary cow, be seven and one-half inches; each cow's manger and feed box should be separated from that of her next neighbor. Having such a stable, it should be made so tight with closely fitting doors and windows, that the mercury even in the coldest days will fall but little, if any, below the freezing point, and yet so arranged as to be easily ventilated when occasion requires. Shelves and hooks should be provided for pails, stools and stable utensils.

*Breed of Cows.*— Having properly provided for accommodation of cows, we can very properly turn our attention, for a moment, to inquire what breeds are most desirable and profitable. The native cow and grades from various imported breeds have in times past been our main reliance, and while many individuals have developed qualities in form and size, and at the milk pail, which left little to improve upon, yet the great mass of milkers were more or less unreliable and uncertain; hence, full bloods of various breeds have been introduced, with a view to more fixed and certain results. Without any wish to undervalue other desirable breeds, I have become convinced that, for general dairy purposes, the Holsteins are unsurpassed; in the abundant flow of milk, we think them unequalled, and in quality, taking both butter and cheese into the account, they will be found the peers of any breed. After their days of usefulness as milkers are past and beef is the consideration most to be desired, they will rank along side the justly celebrated Short-horns. For hardiness and docility they have no superiors.

*Feed and Management.* — With such pasturage and hay as we have indicated, but little grain will be found necessary, but such a condition is not always possible. Drouths will pinch at times both pasture and meadow; storms will injure the hay; then ground feed becomes both necessary and profitable. Corn meal, mixed with bran, oat meal, or some lighter substance, is probably as good and as cheap as any good feed. Our best judgment is that cows should be fed in small quantities and often, requiring them to clean up the manger if the feed is good; if not, the refuse should be removed often, thus giving them fresh forage at each foddering. Let the feeding, watering, salting and milking be always regular and uniform, not forgetting the rubber, curry comb and the brush. It is needless to add that, at all times and under all circumstances, the utmost kindness, patience and forbearance should be exercised, and especially while milking.

*Milk.* — Should be drawn into tin pails, clean and sweet; strained into tin cans; cooled, as soon as possible, sufficiently to eradicate all animal heat; kept removed from all offensive smells; hauled to factory on a spring wagon driven at a moderate gait, where the responsibility of the dairyman closes and that of the cheese maker begins.

*Cheese.* — The mechanical and chemical process of cheese making have been so often said, written and recorded, that it seems unnecessary for me to attempt a repetition were I ever so conversant with them, and especially since you have listened to Prof. Arnold. I shall only mention a few things that have come under my observation, and points where failures most often occur. Poor milk, sour or tainted, or both, is the bane of the good cheese maker, and the dairyman is mainly to be blamed for this; slovenly habits in milking, and want of care in cooling are the greatest sources of difficulty; but when the milk is good, and the fault is with the cheese maker, his failure is for want of proper attention in details; exactness is indispensable; proper degrees of heat, the proper time to apply the rennet, the exact amount of acid to develop that his cheese may be uniform in texture and color from day to day, must all be attended to unfailingly; care in filling the hoops so that the cheese may be uniform in size, is where many fail. We believe that many grave mistakes are made in the manipulation of rennets; none but the best and sweetest should ever be used, and these in our opinion should be prepared and kept in stone crocks, soaked in water, and only a small quantity prepared at a time, having two jars, one for present use and one steeping for the future.

After cheese are well made, properly pressed, and laid upon shelves, much still remains to be done; turning often and rubbing well gives a smooth, velvety rind, has a tendency to prevent cracking, and keeps the skippers at bay.

Temperature is also of vital importance, and in the years to come will be more and more considered. Undoubtedly the time is coming when a series of curing rooms will be deemed indispensable; one with a high temperature for the new made cheese, one of lower for that which is older, and another still of a cool temperature for cheese that are well cured.

But of all the requirements in and about a well regulated cheese factory, cleanliness should be one of the foremost considerations. No person, however skilled in cheese making, can have a first-rate article made in an untidy factory, with sickening odors on every hand.

*Whole Cheese.*— The times seem to indicate that if we would find a ready market for Wisconsin cheese, and sustain the enviable reputation we now have, we must keep the skimmer out of the milk vat.

*Salt.*— Perhaps I may be considered as intruding upon sacred ground in alluding to salt in this paper, but in this year 1879, when Americans are carrying coals to Newcastle, prints to Manchester, cutlery to Sheffield, watches to Switzerland, some Yankee ought to be "cute" enough to make pure salt out of American brine, and thus save millions of dollars that now go to foreign lands. If I mistake not, some chemist has already had the audacity to assert that even now some brands of American salt are quite as pure as any imported goods, and don't cost half as much.

Hazen — I would like to make a very few remarks in regard to the paper just read. I see that the gentleman in his paper refers to dairy cows of special breed, that is, he recommends the Holstein. I merely want to bring this subject up for the consideration of the meeting, as my experience has been entirely different.

Cheever — I admit the justice of the criticism, but think Mr. Hazen did not quite understand me. I said the Holstein were superior to the Short-horn for beef, but for milking purposes the Short-horn are superior to any breed.

Hazen — By what observation I have made I think the Holstein are large milkers, but they are not the stock that are going to take the lead. They are large cattle; large bone and large form. The quality of the milk is not considered so good in some localities. In talking with a gentleman in New York state he made this statement: He kept a factory, and told those who brought him milk that if they kept the Holstein cows he would not receive their milk on a par with the others. If we are keeping a butter dairy, I would prefer Jersey grades. For a cheese dairy, Ayrshire.

## VIEWS AND EXPERIENCE OF A CHEESE BUYER AND DEALER.

By W. W. INGRAM, New York.

In many localities there are too many factories, or what are styled factories, for the amount of business to be done; and the excuse which these so-called factorymen make is, that their patronage will not pay for better or more suitable buildings, and that cheese making is an experiment with them. How long must the hard-working milk producer furnish his hard-earned property for these men to experiment with, and the factorymen go on taking their milk, making it up in all kinds of buildings, any and every old rookery being turned into what they call a cheese factory; old hovels, old sheds, old barns, and even old stinking tanneries, not fit for decent hog pens, have been and are now in use for making and curing cheese. And they tell you cheese making is yet an experiment, and if they keep on in this way, it will always prove a dear and unpaying experiment to the poor farmer who furnishes the material. For years we have been talking and trying to educate the dairyman as to his duties in furnishing the factories throughout the country with the proper material for making butter and cheese, and great good has been accomplished, and there is still room for improvement in the furnishing of good and pure milk to the factorymen. But allowing that the very best material has been furnished, and the very best cheese makers have been employed, yet with an insufficient making room or curing room all the good work by the dairymen or cheese makers is lost, just by not having a proper curing room, either for hot or cold weather; and the past and present season has shown this to a greater extent than ever before.

All connected with cheese, both factorymen and dealers, remember well our cold, backward spring and early summer. Quantities of poor cheese went on the market in an uncured state, going far to lower the price of our product and stop the consumption, and furnishing the means of long lines of poor and insufficiently cured cheese to accumulate and become a drug all over the land. Had these been properly cured they would have gone directly into consumption. Factorymen must not forget that cheese is, if properly made and cured, an article of food, not a mere article of traffic, such as pig iron or hardware.

With the greatly increased production, it behooves every dairyman and factoryman to produce the finest goods possible, to supply a quick and ready consumption. We are entering upon a new era in the dairy business; things have greatly changed within a few years. The time has come when the cheese producing sections of this country are not confined to a few localities, or to certain times of the year, but can be and are produced in all the northern states of the Union, at all seasons of the year, and in many sections with marked success during the whole year. So these facts go to show that we are not living way back in the dark ages — but that we are a progressive people, leaving the old worn out ruts, and seeking new and more progressive channels; so I would say to both dairymen and factorymen, make better goods. The time for eating old, strong butter and cheese is past. The consumer demands a better article, and it is his right to have a fine article of food. They are willing to pay full market value for a fine and wholesome article; and the finer we make our butter and cheese, the greater will be the consumption; as we increase the consumption, we increase the demand, and good prices are always obtained. With our great and growing dairy interest all over the country, it is to the interest of every dairyman, factoryman and dealer, to put before the consumer nothing but the finest the land can produce, and unless greater care is taken of our consuming interest, our prosperity as a dairy people will be lost.

Many other little matters, yet of vast importance, pertaining to the filthy condition many factories in this region are kept in might be spoken of. Scripture teaches us that the wicked stand on slippery places; if this be so, I must be of the peculiar class, for many factories I have been in are kept so dirty with greasy and slippery floors, it was almost impossible to stand without supporting yourself by some immovable object. Let us have fewer and better factories, proper curing rooms and finer cheese.

Much has been said as to the many methods and different plans to store and keep cheese through hot weather, but as yet every plan has proven a failure, and this has shown itself more forcibly the past season than ever before.

Now as far as my knowledge goes, the best store-house I ever knew for storing cheese for all seasons of the year is an Englishman's stomach. And if we have an eye on our present as well as our future dairy interest, we will patronize this store-house, and just so long as we make full stock cheese, rich, mild and clean flavored, these store-houses will take all our surplus stock at full market value, and we may have no fear of an over-production.

So make nothing but fine goods and dispose of them when they are well cured and fit for market, and you will be richly rewarded for all your labor.

But hang up the skimmer.

Yes, hang any party who attempts to use it.

Skim cheese are played out, and ought to have been long ago; and bad luck to the party who invented their manufacture.

## REPORT OF SECRETARY.

*Mr. President:*—There is printed annually by the state printer, two thousand copies of 150 pages each of the Transactions of the Wisconsin Dairymen's Association.

The legislature receive six hundred copies, the State Historical Society, Academy of Science, Arts and Letters, State Agricultural Society and Northern Wisconsin Agricultural Association, receive forty copies each, the remainder are distributed to the members of the association, and generally over the state to all who make application for them. Twice the number could be distributed profitably to the dairymen of the state.

The reports are being much sought after by dairymen from all parts of the northwest.

A complete set were sent to the British museum last year.

The association receives its support from members who join each year, paying the sum of one dollar.

The treasurer's report will show that the association is financially sound, that there is not the least danger of his running to Canada or investing the surplus in four per cent. bonds.

The expense of the secretary's office for the past year for paper, envelopes, printing and postage has been $38.69.

Respectfully submitted,

D. W. CURTIS,
*Secretary.*

## REPORT OF TREASURER.

### RECEIPTS.

1878, January 24.

| | |
|---|---|
| Received of James Orvis, former treasurer | $122 50 |
| for memberships | 13 00 |
| Total receipts for 1878 | $135 50 |

### DISBURSEMENTS.

1878.

| | |
|---|---|
| Jan. 24, paid E. D. Coe, for printing | $7 00 |
| Jan. 24, paid J. C. Bowers, for use of hall | 20 00 |
| Feb. 4, paid D. W. Curtis, old indebtedness | 4 42 |
| Mar. 28, paid W. D. Hoard, printing | 14 25 |

| | |
|---|---|
| Feb. 4, paid D. W. Curtis, services as secretary | $50 00 |
| Feb. 4, paid D. W. Curtis, office expenses | 38 69 |
| Total disbursements | $134 36 |
| January 22, 1879, cash on hand | $1 14 |

Respectfully submitted,

O. P. CLINTON,
*Treasurer.*

On motion, the report was accepted.

## WHAT AILS THE BUTTER?

By F. C. CURTIS, Rocky Run,
**President Columbia County Agricultural Society.**

*Mr. President, Ladies and Gentlemen:* The question presented appears to be rather indefinite, and quite a general one. I hardly understand what butter is meant or what the question means, by "What ails the butter?" No butter is presented here for our judgment on the matter, and I hardly know how to commence. I am aware there is bad butter offered for sale, and to get at some point of commencement I will state what a dealer in butter in Milwaukee said. He told me that about half the butter that was sent to Milwaukee was sold for grease from three to eight cents per pound. I don't know how to illustrate this subject better than to relate an anecdote I heard a short time ago. It is said to have occurred in Boston. A couple of Irish emigrants had just arrived and were dining upon fish-balls, the fish of which was "a little off," as butter experts have it. They thought they were biscuits. After a while one said to the other, "How do you like the biscuits?" He hesitated a moment and said, "How do you like yours?" "I think, friend," answered the other, "that there is something dead in mine!" And we are almost led to suppose that there is something dead in this butter that sells for three cents per pound. What I have to say upon the subject will be addressed mainly to those who make this low-priced butter.

[A voice — "There are no such persons here."]

I accept the correction, but still there is room for improvements even with graduates, and there are great changes recommended in handling milk to extract the cream, which some of us may have discovered — some important knowledge or principle, by actual experiment, that will benefit us all.

I have no fears for the butter product of those who are enterprising enough to attend our meetings. "They are the little leaven that must leaven the whole lump." The views I am about to advance are designed mainly for the ignorant, or parties who make bad butter in a small way, and it may be a little dull for those here to listen, but I will endeavor to be brief, hoping that I may drop some ideas that will interest all who hear me. It is said that the small farm dairy cannot make good butter. That the odors of the kitchen from cooking, smoke, etc., uneven temperature, and various contingencies beyond the control of those manipulating the milk into butter, make it absolutely beyond their power to make a good article. From the usual standpoint, I concede this to be a fact, but from an advanced standpoint I do not. I much doubt if a better article of butter can be made by any other plan than the common tin pan, provided a pure atmosphere and a temperature of 60° can be controlled. While I claim this, I concede the failure, because the small farm dairies cannot control these unalterable requirements.

Whatever method is adopted to extract the cream from the milk, a uniform temperature is required; that degree of temperature must be in proportion to the quantity of milk set in one body; therefore if the common open tin pan, four inches deep, requires a temperature of 60°, a larger body of milk, set at blood heat, would require a colder temperature, or fermentation would take place before the cream rises. A colder temperature can be secured with ice. We also find a colder temperature in the earth, and that a uniform one of about 49°, at a point probably not exceeding ten feet from the surface, provided we shut out the uneven atmosphere from above. It has been claimed that the raising of cream required air, but it has been proved that it does not — that it is all the better to exclude all air; hence it appears feasible to put in use this regular temperature of 49° in the earth, provided we set the milk in proper quantities. In doing this we find ourselves required to close the vessels containing the milk air-tight; this, it will be noticed, confines the animal heat, which must be considered in concluding the size of the can to hold the milk.

I have tried a great many experiments, and finally used for some three months, cans about eight and one-half inches in diameter by twenty deep. The cover was made like a common tin pail, only the flange going inside was two inches wide, and the top of the cover had a tube hole about one-fourth of an inch in diameter, soldered fast. The cans were filled and the covers pressed down, while the tube hole was open to allow the air to escape as the flange of the cover entered the milk. The tube hole was then closed by a cork, and the cans were lowered into the well about twenty feet, where they remained until the next milking, when they were withdrawn and set in some convenient place until the cream thickened from acidity; it was then easily removed by dipping off with a saucer. I used these cans from the middle of last June to the middle of September, and it will be remembered as a very unfavorable time for making good butter. We found the butter made from the cream raised in this manner to be good; that which was not used or sold (some 300 lbs.) was packed for fall and winter use, some of which is now on hand in a good sweet state. The unfavorable state of the atmosphere, so loudly complained of by others, did not seem to affect the quantity or quality of our butter.

Mr. Curtis here explained the plan of can he had used by exhibiting a common tin pail with ordinary cover; he now recommended some alterations in the can and cover, to wit: The can to be made of two large sheets of tin as large as they would work, making a can about 8½x20, a glass to be placed on the side as near the top of the can as practicable, and to be three inches long, to show the thickness of the cream; a tube hole five-eighths of an inch in diameter, suitable to hold a cork, even with the bottom of the glass, to be inserted in a proper manner. He also recommended in the place of the cover, if practicable, a screw cover four or five inches in diameter, or even less; this would be an advantage in handling, and the cans being used only while the milk is sweet, are easily scalded out.

A Voice — How would you get off the cream?

Mr. Curtis — By taking out the cork at the bottom of the glass. Should the cream not come down to the tube hole, tip the can in the opposite direction. If the cream does not all draw off or goes below the tube, tip the can forward — don't be afraid to get off some milk, all the better for that.

Question. — Did you ever use the vacuum can?

Mr. Curtis — I have been to considerable expense to try the vacuum can, as it is very difficult to get a perfect vacuum, but I succeeded and found it of no more advantage than shutting up the milk from outside influences; no better than any air-tight can, or can that shuts out the air.

Question — Have you used the submerged can?

Mr. Curtis — Only in a small way, as I understand there is a patent upon the submerged plan. I have taken two quart glass fruit jars, filled with milk warm from the cow, cover put on tight; one submerged in water at 49°, the other *standing* in water of the same temperature, and as deep as the milk in the can. I found no difference in the results. From this I infer that it is just as well to set the cans in water at 49°, keeping it at that temperature, as it is to entirely submerge it in water at that temperature or even colder. There are many who, with screw top covers on their cans, may lower them into their wells, to remain from one milking to another, draw off the cream, and rinse the cans for the next milking. Springs can be utilized for this purpose; where neither are at hand, water from the well may be used, but will require changing unless ice is used.

Where neither of these advantages can be commanded, a cistern can be made of sufficient capacity, and the necessary amount of water put in, and a close double covered entrance. This, if deep enough, say eight or ten feet, with a thick covering of earth margin, will doubtless be found adequate to secure the proper temperature of 49°. The water will probably require changing occasionally. When a temperature of 49° cannot be maintained, I advise caution — try a can of smaller diameter. My philosophy is, that when the milk is shut up in those cans at animal heat it cools slowly; the outer portion of the milk coming in contact with the cold settles to the bottom. The inner and warmer portion rises to the top, carrying with it the cream, where it remains. The warm and cold coming in contact, creates an upward and downward current in the milk, which produces the happy effect; continuing until the milk becomes as cold as the water or air outside, when all the cream will be found to have arisen. This appears to me to settle all questions about odors and temperature in raising cream, in large or small quantities; and nothing is required that cannot be purchased at some near village or produced by the common farm hands.

Q. Do you think the duty of the dairyman ends here?

A. Of course not; but I consider I have fully set aside the arguments holding that good butter could not be made in small dairies, on account of odors and uncontrollable temperature; the rest of the labor can be learned if the scholar has the capacity, and can command a few simple appliances.

I will state now, how to make the cream into butter. Whenever we skim, and put two or more different skimmings together, we stir each additional skimming, to make a common degree of acidity or ripeness. We use the rectangular churn.

Q. How long does it take to churn?

A. About half an hour. Sometimes comes a little quicker; sometimes a little longer. When I know by the noise that the butter has come, I open and draw off the buttermilk into a clean vessel as quick as I can. If a little butter runs off, it is very easily taken out of the vessel and put back again. I then wash it thoroughly with good pure water, and am very particular to have the water pure.

Q. Do you give any attention to the temperature of the water?

A. Yes, sir. The water in my well has a temperature of about forty-nine degrees.

Q. What is the temperature of the cream?

A. 62° in the winter time, 58° or 60° in the summer time. After removing the buttermilk, I generally wash through two waters. This time of year I color a little. I put the coloring water into the salt and then put it into the churn, and turn the butter over and salt the other side. It will not take as much coloring water to color it in the cream as it does in the salt; and not only that, but the acidity of the buttermilk don't give as good color as it does to put it in the salt. After getting it worked through, I put on the cover and revolve it, and then take it out into the worker.

Q. You put the coloring in while the butter is in the churn.

A. Yes, while the butter is in small particles; because if you put it in the salt when it is formed into a mass, it will be more trouble to get it worked evenly through it.

Q. Why don't you put the coloring in the cream?

A. Because the acidity of the cream seems to give it a reddish yellow, instead of a delicate "June" tint.

Q. What coloring matter do you use.

A. Wells, Richardson & Co.'s.

I deprecate the use of many of the fast churning processes of the day. They heat and crush the butter globules, and mix in buttermilk in such a manner that the grain of the butter is spoiled, and the buttermilk can not be removed. I consider churns working upon the principle of the rectangular churn, or where the agitation of the cream depends upon the falling of the cream, much the best. Unless much too warm, there is no danger of rupturing the butter globules by this class of churns.

The washing of the butter, salting and working the first time, is all done without removing it from the churn. The salt should be good and one ounce to the pound; always sift it, however good. If the salt is fine, four hours is long enough to remain for reworking. If a butter worker cannot be afforded, throw away that old butter bowl; it would contaminate the best butter ever made; besides you have not the strength to use it. Take a clean board — hard wood if you can get it; flatten the butter upon the plan of making biscuit, roll it up and reflatten it; avoid drawing motions of the ladle. But little working will be found necessary, if your temperature was right in churning, and your churn did not spoil it by its crushing agitation of the cream. If you are all right up to this time, but little working is necessary; if wrong, all the working and patting you can do will never make good butter.

After working the butter, it should be solid packed at once. Where one churning will fill a tub, jar or other package, it insures butter of one color and quality. In all the handlings of milk, cream or butter, keep them from the influences of the atmosphere as much as possible.

# WHAT AILS THE BUTTER?

### A GENERAL DISCUSSION UPON FEED, CARE, AND BREED OF COWS; SETTING THE MILK, ETC.

By C. R. BEACH, WHITEWATER.

*Mr. President, Ladies and Gentlemen*: I don't know what ails your butter. It ain't more than half the time I know what ails my own. And if I did know, I couldn't tell. It is not my trade to talk. I wasn't bred to the business. Yet I will not waste your time in telling you how unfit I am to stand here; you will find that out as quick as I can tell you, and perhaps quicker.

While I am proud to be called a butter maker, I do not in any sense aspire to be a teacher. I hope therefore that none of you will change any preconceived opinions, simply from anything I may have to say.

I was once with a friend looking over a lot of steers which he was feeding for market, and, in my admiration, I involuntarily asked: What sight to a farmer's eye can give greater pleasure than such a drove of fine formed, well fatted bullocks? Said my friend: If the price be good. That answer is the key-note to all our farm enterprise, butter making included.

And this is the first thing that ails the butter — the price has not been good. And I should very much dislike to stand here and talk butter any way, did I not know that this same depression had been shared in common, not only with all other farm products, but with all other branches of industry and all kinds of business the country and the world over.

Yet, bad as the case may seem to look, I think as butter makers we have more reason for congratulation than discouragement. The price of good butter has, I think, been relatively higher than any other farm product. The market for butter has, perhaps, taken a wider range — lower prices have been accepted than ever before — yet this fact should but stimulate us to the production of a better article. And if the signs of the times point to a continuance of low prices (and I think they do), we must try and make butter cheaper. To the solution of these two questions every butter maker should bring his best thoughts and his best endeavors. And I suppose the chief object of these gatherings and of these discussions is the production of a better article at less cost.

Butter making is called a trade; I prefer to consider it an art. Architecture, sculpture, painting, are generally denominated the fine arts; and a nation's progress in intelligence and taste are supposed to be indicated by the progress made in some one or all of them. To this list I would add *butter making.*

That tub of butter out yonder, which you call gilt-edged, and upon which you are about to bestow a gold medal — what does it represent? What does it mean ? It means good land and good grass. It means good crops of corn and of oats, for without these it could never have been produced. It means good cows, well cared for. It means good stables and good water. It means intelligent and systematic handling of milk. It means neatness and order. It means refinement and taste. Its production touches and is connected with all our farm and domestic economy. It is at once the product and the exponent of our best civilization. It is the spirit of the age materialized.

And this is in part what ails the butter. We, as butter makers, have failed either in our surroundings, or in our knowledge, or in our application of it, to teach that point necessary to its best production. Or to use more classic English, we are not quite up to our business, and we don't quite fill the bill.

If what I have said be true, the discussion of this butter question takes in a pretty wide range of subjects, and we see how impossible it is to lay down any set of rules by which any fool can make good butter, or every wise man either. I shall not attempt it; and I feel rather delicate in saying much about good butter anyway. What little I do know is but reflected knowledge. And, I am free to confess, that the little success which I seem to have achieved may be attributed only to the intelligence, the skill, and the genius of one who I may not here publicly praise. If her husband is known in the gates, when he sitteth among the elders of the land, it is because he is her husband.

Women are, I think, under the same conditions, better butter-makers than men. And were I in search of the finest specimens of butter, I should not go to a factory with a high sounding name, conducted by a man of state wide reputation; but to some private dairy, presided over by a woman of refinement and taste. And there are many such who could prepare papers for an occasion like this, that would be much more instructive than anything I may have to say.

Women sometimes, and I may say generally, work their butter too much. The reason men do not is, I suppose, because they are *constitutionally* lazier. I hope none of you men will go home and tell your wives that in order that the butter be good they must do all the work. I wish simply to imply that if you would place yourselves more under the direction and influence of your wives, not only in butter making but in all business matters, your efforts would produce better results, without any feeling on your part that you were *hen-pecked* either.

The general character of the butter made in our state has greatly improved for the last few years; and of much that is made by our best factories and dairies, we may be justly proud. On the other hand, much poor butter finds its way to the market, judging by the price which it brings.

If we inquire, "What ails this butter?" I answer, that its poor qualities may be attributed in part to the round about and unsystematic methods by which it has reached the market.

A great deal of good butter is spoiled on the road from the producer to the consumer. Butter is at best a delicate and perishable article. It never improves by age or handling. We should, therefore, study to make the transfer from the maker to the eater as quick and direct as possible. If all butter makers need this lesson impressed upon them, much more so the owners of small dairies. Their butter, made for no particular market, often waits for a buyer, or it is exchanged with the country merchant for goods, or perhaps sold to some general produce dealer, who has purchased other lots; some good, some bad, some neither one nor the other, and he sends the whole to some general market; now through this channel, now through that; now to Chicago, now to New York. The whole having no uniformity of character, no reputation. Is it a wonder that it is often sold at a price which is discouraging to the maker?

The maker of butter, however small his number of cows, should make it for some particular market.

First, in his own town, let him supply families that want butter, if there be such. If not, then families in some city easy of access, always bearing in mind the nearer the better. Or if the quantity be sufficient, then supply some boarding house or some hotel, or let two or three unite and send to some retail city dealer, or some commission man, each maker marking his own butter with his own brand. And in choosing to whom you will send it, have an eye more to the character of the customer than to the price received. And when you have found your customer, send your butter freshly made, and make such butter as he wants; that is, good butter which pleases the eater; and if you have succeeded in pleasing him, stick to him so long as he deals honorably. By such a course not only will your butter reach the market in the best condition, but you will be encouraged and take more pride, and thus make a better article for which you will receive a better price, and you will make yourself a necessity to your customer.

What I have said of small dairies will apply to large ones in a modified form. This question of market is a very important one, not only in reference to the price received, but also in its reflex influence upon the quality of the article produced.

I have not attempted to elucidate a system, but simply to make a few suggestions. Take them home. Think of them. Add to them and work out the results.

Allow me to say that in my own case, for more than six years, every pound of butter I have sold has been taken weekly by the same parties through their successors in business. I have not in that time changed my customers.

Co-operation has done much and is destined to do still more to improve the quality of our butter. Yet I think that the best attainable results, both as to quality and cost, can be produced by the private dairy, where butter making is the exclusive business, and the farm large enough to require the undivided attention of the manager.

A part of our want of success as butter makers, especially so far as profit is considered, may be found in our want of care in selecting our cows; we are not careful enough to keep none but good ones; we do not take pains that we ought to weed out the old, the physically defective, the hard milkers and the vicious.

I am inclined to the opinion that most dairymen keep their cows until they are too old. A cow that has been highly fed, as she ought to be for butter, and milked as long each year as she profitably can be, and at the same time yearly produced a calf, exhausts her vitality sooner than we are apt to think. It costs more to keep the old cow, and as she grows older her value for beef rapidly declines. I used to think I would prefer a cow from seven to twelve; I now think from five to eight the golden age. The difference between a dairy of carefully selected young cows and one in which reference is had chiefly to numbers, can hardly be overestimated.

As to the selection of the individual cow, I would say that there are many rules and marks, and signs, which are supposed to indicate her quality, but they must all be taken with a good deal of allowance; for, like the signs of rain in a dry time, they frequently fail. Yet I will mention a few characteristics which I think desirable. I would prefer that the cow should not be above the medium size, under rather than over. I would have her spirited, and at the same time docile and intelligent, while I would have her thoroughly feminine in her organization. I would have her characterized by that robustness of constitution which is indicated by the word hardy. All other qualities, however good in themselves, lose much of their value without this quality of hardihood.

No cow under the best treatment, and with the best feed, can support her own organization and yearly produce a calf, and at the same time give profitable returns in milk and butter, without a good constitution. But when expected to do so, under the treatment that some of us give, she needs to be pretty *tough*. This quality of hardihood is possessed by our common cows in a greater degree than by any of the improved breeds; and this, together with the general good qualities, and her thorough acclimation, renders her more desirable for the butter maker than any of them. Much is claimed for the Jersey as a butter maker; yet it would seem to me, from the extreme delicacy of her organization, that she is better fitted to be the pet of a family than for the rougher surroundings of the dairy. I know that it is claimed by her admirers, that her want of constitutional vigor is more than made up by the richness of her milk and the superior quality of her butter.

I have in my yard half a score of Jersey grades, seven of which are in milk. By trials made both in summer and in winter, I have never been able to produce from them a pound of butter from less pounds of milk, than was produced by the milk of the whole dairy or by individual common cows. As to quality, I thought that the butter made from the milk of these grades was in both trials a little firmer in texture, but after showing the test samples made in the winter to a large number of good judges, some of them experts, I came to the conclusion that this difference was in part a fancy of mine, and that if my butter failed to bring the highest price, I must not attribute it to a want of Jersey blood.

Thoroughly democratic as we are, I fear we sometimes attach an undue and almost superstitious value to that which is foreign and aristocratic to the neglect of that which is common and home bred; and might it not be well for some of us to employ a seller of thoroughbreds to show us the unappreciated good qualities of our common cows?

Some of them have the art of putting things in a way that is extremely fascinating, to say the least. They will tell you that their cow will produce a great amount of butter of the highest quality. Have you placed yours under the best conditions to see if she will not? They will tell you that their cow has been bred for many generations for the express purpose of making butter. Are you sure that yours has not? This butter making is pretty old business any way. In that far off land of Uz, in that almost pre-historic time, Job made butter so plenty that he used to wash his feet in it. "When I washed my steps in butter and the rocks poured me out rivers of oil." It seems that he not only made butter but he had petroleum wells.

How know you but that cow which you call common is a direct descendant from Job's premium cow, in the mother line, and that her ancestors have been the representative cows in all the intervening ages? Or, if not, how know you but that she is the very identical cow seen by Isaiah in that prophetic vision, when he cried, "In that day it shall come to pass that a man shall nourish a young cow and two sheep. And it shall come to pass that for the abundance of milk which they shall give that he shall eat butter; butter and honey shall every one eat that is left in the land." That word nourish has much significance, and if you will fulfill that part of the prophecy I will guaranty the fulfillment of the rest. I would by no means imply that our cows need no improvement, but in our efforts to do so let us not overlook or underestimate the good qualities she now has, nor sacrifice them to mere fancy or caprice. Improved breeding necessitates improved care. High-toned cows imply high-toned men, and in our zeal for improvement we too often commence with the wrong animal.

If butter making is an art, the feeding of cows for the production of butter is a science; and for one, I am free to confess that I feel myself lamentably ignorant of it. And in making this confession, I think I do but give voice to the feeling of almost every dairyman here. And I believe the great want of the dairymen of Wisconsin to-day, is a better understanding of the principles which lie at the base of economical feeding for the production of butter.

While we are all of us ready to claim that in order to make a large amount of butter of the best quality, we must feed high, yet when any of us are asked: what is high feeding, or what is profitable feeding, we find our ideas very vague and indefinite. And what dairyman is there who does not often find himself asking such questions as these. Am I feeding my cows the right kind of food to produce the results at which I aim? Am I feeding too little or too much? What are the substances that my cows require to supply their own wants and wastes? What are the elements contained in the butter I am making? I wonder if there is anything I can feed my cows to make them produce more, with less cost? These, and a hundred like questions, are daily presenting themselves to the mind of the thoughtful dairyman.

These questions can be answered intelligently only by the teachings of science, as discovered and applied by the chemist. But do you ask: Must I be a chemist, before I know how to feed a cow for butter?

When Philip thought Alexander was too much absorbed in some study in which he was deeply interested, he said to him, I would have you understand these things only as becomes a prince. And so I would have you understand chemistry only as becomes an intelligent butter producer, not skilled in the details of the laboratory but having that general knowledge which will enable you to understand and apply its teachings that have a direct reference to your own business.

The science of chemistry, intricate and difficult as it may seem to be, in its application to the feeding of cows for the production of milk, rests upon a few elementary principles easily comprehended. Bear with me a few moments while I attempt to illustrate. The chemist will tell us that all vegetable and animal substances are composed mainly (not entirely) of four simple substances; oxygen, nitrogen, carbon and hydrogen. Oxygen is derived from the air, and with its supply we have nothing to do but to see that our cows have good air, which some of us, I fear, fail to furnish, with our tight stone basement stables. The basements are all right, but sometimes the air is not. Nitrogen enters largely into the composition of muscles, and is an important element in casein in milk. Hydrogen and carbon are the principal ingredients in sugar and starch and oils, and go to produce animal heat and fat.

The chemist will tell you that these three substances are found combined in all food upon which animals subsist, and that the result of feeding an animal any particular substance will depend upon the relative proportions in which they are combined.

Let us see if the application of this simple principle will give us any aid in feeding cows for milk. After determining the chemical composition of the milk, he will tell you that in order to produce it without loss or waste your feed should contain soluble nitrogeneous (muscle producing) substances and the carbohydrate (heat and fat substances), in the proportion of 1 of the former to 5½ of the latter. He will also say that if you vary this proportion let it be by an increase of the carbohydrates (fat producing substances).

Let us apply this formula to pasture grasses, as we have got to depend upon them chiefly in summer. He will tell you that in a pasture of mixed grasses containing a good sprinkling of clover, the proportion of albuminoids will be to the carbohydrates as 1 to 6 (I give these figures only approximately in round numbers, as I am attempting to illustrate a principle and not to teach a science); this is almost exactly the right proportion for milk. And do you not think he is correct?

I hardly believe that you can feed a cow any extra food with profit when the grass is in its prime (say the month of June), if she has all that she will eat.

*Winter Feeding.*—Let us try corn meal 1 to 9; too much fat and heat producing properties; and do you not think so? Wheat bran 1 to 4. These two combined would do better. Clover hay 1 to 5. This is very near right. A little too much muscle producing properties. Now mix all three together and we have 1 to 6; almost the same proportions of good pasture. And does not that correspond with your experience and your judgment? Do you know anything better than good clover hay, supplemented with corn meal and bran for the production of milk in winter?

And so we might go through all the kinds of feed we give our cows, and if their value for feed, as determined by the chemist, corresponds with the teachings of our experience, may we not have some faith in science? It is not to be presumed that science has, or ever can, lay down any set of rules, so exact in themselves and of such universal application, that will enable us to dispense with the use of our brains. In this application of science to feeding for a specific object, our neighbors in Europe are very far in advance of us, and we will do well to study their methods, and profit by them. Our success in dairying, thus far, may be attributed as much to our fortunate surroundings as to our skill; our rich new lands have yielded an unlimited amount of butter-producing food with but little cost, and we have not been under the necessity of studying economy in its use.

But in the near future, all this will be different. Norway and Sweden, Denmark and Russia are rapidly increasing their butter production, and they will compete with us in the markets of Europe with odds in their favor. The older eastern states of our own country are thoroughly awake, and will not yield their supremacy without a struggle.

Behind us are the great states of Iowa and Nebraska, Minnesota and Dakota, each of them great empires of themselves, who will soon be to us what we now are to the old eastern states. And we can only hope to retain our position in this great family of butter makers, by a wise and economical use of our available resources. We shall have need of all the brains and all the science we can command.

Good butter, like honest money, represents in itself value received. The law which governs its production is the law of equivalents. So much for so much, not so much for nothing.

Therefore, whether we feed scientifically or unscientifically, we must feed liberally, and as the cow is expected to yield her products uniformly day by day, so should she be fed uniformly. Not lavishly to day, because we have an abundance, and scrimpingly to-morrow, because we happen to be short, but regularly and systematically.

And in order that he may keep this uniformity of feed, and so guard against the contingency of drouth and short pasture, as well as the continual change of the seasons, the butter producer should make it his study to provide himself with fodder corn in abundance; with clover and millet; with corn-meal and bran; anything and everything, so that he may be sure that his cows shall not want for a single day a full supply. The uniformity in feeding is of the greatest importance, if one would obtain the best results from the food consumed. But while the butter maker should strive, by every means in his power, to bring his cows to the highest point of profitable production, he should, at the same time, be careful that he does not over-feed, especially when feeding highly concentrated food.

The cow has a limit to her capacity to produce milk, beyond which she can not be made to go. The nearer by high feeding she is made to approach this point, the less proportion of her food will she convert into milk, and when the food is not all worked up it is wasted, and what is wasted is lost. She may be so fed that she will give a less amount of milk than she would were she receiving less rich food; or she may be laying on flesh and fat at the expense of her milk and butter, and when she has commenced to do so, she will do so more and more. And by continuing to stimulate her fat-producing propensities, we not only decrease her present power to convert her food into milk and butter, but also impair her future usefulness and perhaps endanger her life. The percentage of cows that die of milk fever in high fed dairies is sometimes very great.

This question of feeding cows for the production of butter opens up a field many sided, wide and far stretching. In the few remarks I have made I have but just entered it, or rather I have not entered it at all; I have but looked over the fence. But I weary you by my talk, and yet I have said nothing of the influence of methods of handling milk upon the quality of the butter, nor shall I upon this part of the subject. Curtis has told you much, and told it well. After me comes Houston, a king among butter makers, and a Jersey man, too; he will tell you more. I trust Mr. Houston will pardon me when I say that day before yesterday I had the pleasure of visiting his house and dairy. And the sight of his cows and dairy and the facts which he gave me, and the butter which he fed me, was worth more than a whole volume of such papers as this.

Let me in conclusion say, that in the production of good butter all these questions of cows and of feed, of systems, of handling and methods of marketing, are secondary in importance to the character of the man behind them all. And the surest way to elevate the standard of our butter is to elevate the character of the producer.

The maker of butter should be a man thoroughly in love with his business; his success or failure will depend very much upon the spirit in which he engages in it. He should be a man imbued with the spirit of the age, that he may keep step in the march of progress. He should be a man of observation and reflection. He should look outwardly and learn, he should turn inwardly and think.

He should be a man positive and decided in his convictions, fearless and frank in the expression of them, and at the same time of the largest liberality and of the utmost charity. A man who will be as free to tell you of his follies as to boast of his successes. A man who will not hesitate to say, I was mistaken.

Stanard — How much and how often do you feed your cows? One man says he feeds them five times.

Beach — I never get up nights to feed my cows. I would recommend sowed corn. I feed it liberally as soon as they come to the stable. I feed ten or twelve pounds of corn meal and bran. One winter I fed one-half bushel a day and fed it in four messes. I think one should feed small quantities and often, but regular. I feed grain twice a day when I am feeding corn meal. I think we underrate the feeding properties of bran. I purchased the work of a celebrated chemist, and he claims that bran has three times as much oil in it as wheat flour. If I could not have but one thing I would have wheat bran.

Q. Do you give it dry?

A. My theory would be to feed it wet. I made arrangements for heating two barrels of water boiling hot, to which I added one hundred and fifty ℔s. of feed and put it on after the morning feed, for night, and it would be thoroughly cooked by that time. If it was too warm I would pour in cold water enough to make it cool, and feed it to my cows night and morning, giving ten ℔s. to a cow. When I feed them that, we received about twenty per cent. more milk. We carried that on for four weeks, until that very cold weather came, when we stopped it. We are now feeding ten ℔s. of corn meal and bran mixed, half and half.

Q. Do you feed it at once?

A. Twice a day, five ℔s. at a time. In connection with this we feed marsh hay, or any hay, so that the cows get enough.

Q. What do you think a good average of butter to a cow?

A. If the cows are all new milch in the spring, and are good, fair cows, 300 pounds a year is not an extraordinary yield. Last year, I had at one time in my stable over thirty cows, and I made over 8,700 pounds of butter.

Q. What is a good yield in the height of the season?

A. A trifle over a pound a day is my summer average. A pound a day is a very good average.

A. A. Boyce — Can you make your cows average a pound of butter in the winter?

Beach — We took a good deal of pains in 1871, and we averaged 1¼ pounds every day.

W. D. Hoard — He feeds his cows so much, and he says there must be also brains. I would like to inquire where he buys his brains?

A. I am very near Fort Atkinson, where friend Hoard lives.

## FEED AND CARE OF COWS.

BY ISRAEL BOIES, DAVIS JUNCTION, ILL.

I did not come from Illinois for any other purpose than to learn. And I know very well that the state of Wisconsin stands *head and shoulders* above Illinois in the dairy business. I presume some Illinois friends will differ with me; but I have looked into the matter closely, and can truly say, that Wisconsin is the *Banner State of the West.* I have learned a great deal since I have been here, and I think that the address of Prof. Arnold, if properly taken up and followed out, will be worth millions to the state of Wisconsin. He knows to-day that Wisconsin stands even with New York state; why can't she pass it? She has as good pastures and pure waters as any country on the face of the earth; and her people are men of large intelligence.

I have had an experience which I will repeat here. Last month we found that our milk varied 20°; there was milk that tested only 95°, and some that tested 103° by the lactometer. We put the milk below 95° in one pan and all above it in another pan; both were treated alike, and skimmed and churned, and that tested below 95° took thirty-one and one-half pounds of milk to make a pound of butter, and that above 95°, twenty-two pounds of milk to make a pound of butter. We then asked what they were feeding those cows whose milk tested below 95°, and we found it to be buckwheat and dry bran, and the other cows were fed two quarts of a mixture, consisting of two quarts corn meal; four quarts oats; four quarts wheat bran, and one and one-half quart of oil meal. Those cows were producing milk that tested 103° by the lactometer. Thirty-four of those cows were new milch; six *skippers* (as we call them); four farrow, averaging twenty-five pounds a day.

Q. How long would you recommend feeding cows?

A. I would advise ten months.

Q. Would nine months be long enough?

A. No, sir; not when a cow comes in in the fall. If she comes in in the spring perhaps it would.

Q. What is your experience with cows having the milk fever?

A. I will tell you my experience for two or three years. It depends a good deal upon the weather; if it is extremely hot, there is more danger. The best result we ever had was in the fall of '73. If you recollect that season was uncommonly dry, and we had very little grass. When we drove the cows off we thought they would come in in bad shape, and we wondered what we should do. I tried this plan: I had the cows come into the stable every day, and gave them about two quarts of wheat bran and one pint of oil meal, and we did not lose a single cow from milk fever. They averaged 314 pounds, and a few gave 794 pounds of milk that year. The following winter was exceedingly cold, and we fed them fourteen pounds of corn meal and wheat bran, and one and one-half pounds of oil meal; continued that until it became warmer.

Q. Hoard — If I have two cows every way alike at the time of coming in, except one is in full flesh and the other in just fair flesh, which would you prefer?

A. The one in full flesh.

Hoard — We would differ on that point; I would prefer one with but little flesh.

R. S. Houston — What do you think of corn meal?

A. I could not do without corn meal less than 30 cents per ton.

Q. What is the benefit of the oil meal mixed with the feed?

Prof. Arnold — First, it is good for the fat that it contains; second, it is valuable for the albumen oil it contains in such an easy state of digestion. The value of food depends upon its availability. It is the oil which it contains which goes into the blood of the cow and is decomposed into fatty oils and then recomposed into butter. It furnishes a great deal of blood-making material.

Q. If this oil meal is mixed with the corn meal, what proportion would give the best result?

Arnold — Don't think it would make any difference.

Q. What is your experience with oil meal?

Boies — I will give you my experience: Two years ago this winter I told my son we had better order a ton of oil meal, but he objected; did not think it would pay, etc. So I said to him, I will make you this proposition: I will feed the cows my way, using oil meal in their food, and then you can feed them your way; we will then weigh the milk, and see which takes the most milk to make a pound of butter.

We did so and measured it for a week. The cows he fed averaged eighteen pounds per day, and it took twenty-three and one-half pounds of milk to make a pound of butter. The cows which had oil meal in their food averaged twenty pounds of milk per day, and it took twenty-three pounds of milk to make a pound of butter.

This convinced him that no dairyman could afford to be without oil meal.

Q. When do you salt your cows?

A. Every time we feed our cows meal, we give them about a teaspoonful of salt.

Q. Do you feed your cows when you milk?

A. Always.

Q. What is the philosophy of it?

A. It keeps them quiet.

Q. You feed in boxes?

A. Yes, sir.

Q. Do you think the breed has anything to do with the quality of the milk?

A. Yes, sir.

Q. What do you think of cooked food?

A. I have had the best result from cooking the food. You must be very particular to have it all thoroughly wet. When you put the feed in a box you must not have it wet in the middle and dry at the ends.

Q. How long do you cook your food?

A. Two hours.

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The following timely letter from Prof. Geo. E. Morrow was read, and a committee appointed to represent the dairy interest of the state, and instructed to see that a creditable exhibition was made:

CHAMPAIGN, Ill., January 18, 1879.

HON. D. W. CURTIS,
*Secretary Wisconsin Dairymen's Association, Fort Atkinson, Wisconsin.*

DEAR SIR: I much regret that I cannot be with you at your annual meeting, but my work here will not permit. Some members of the association will remember how frequently I formerly endeavored to impress on western dairymen the importance of securing the best possible reputation for their products, of course first making them deserve a good reputation. Fuller exhibitions at the state fairs, a good exhibit at the centennial and at the inter-state exposition at Chicago, I especially urged. Now I hope all are convinced that much good has come to western dairying from such exhibits, imperfect as many of them have been. I have been much gratified at the success of western dairy products at the recent dairy fair at New York, and trust, in future years, an international dairy show may be maintained with the hearty co-operation of Wisconsin men.

I wish to call attention to two exhibitions which seem to me well worthy the attention of your association. The Illinois State Board of Agriculture, in arranging for the second annual fat stock show, to be held in the exposition building at Chicago, Nov. 10 to 15 next, has decided to include, with this, a show of dairy products, and has appropriated $500 for premiums for such products. This sum is not a large one, but it will enable the board to offer respectable prizes, and, it seems to me, the show is especially worthy of patronage. The first fat stock show was very successful in many points, and I have no doubt the second and all future ones will be marked successes in all respects, growing to rival the great shows of the same class in England. It is certainly appropriate that the dairy should be represented at such an exhibition, and I trust Wisconsin butter and cheese makers will see it to their interests to make large exhibitions. While held under the auspices of a state board, I think I may safely say there is no wish on the part of the managers to make the show, in any sense, a local or state one.

The other show to which I would call attention is one much further from us, but one in which I feel much interest — the annual show of the Royal Agricultural Society of England, to be held at Kilburn, a suburb of London, commencing June 30th, next. The annual shows of this society always attract attention, but special efforts are making for this to be held next summer, and it promises to be the largest and best exclusively agricultural show ever held. I have not yet seen the prize list, but it is known that liberal prizes are offered for dairy products, and that these are invited from foreign countries. The secretary writes me that all exhibits must be personal; that is, no provision is made for special exhibits by societies. I cannot but believe that if Wisconsin dairymen would arrange to have a good showing of their butter and cheese, especially of cheese, at this great fair, they would find it bring immediate returns, whether they receive prizes or not. Our American cheese already has a good reputation, but it can have a better one, and Wisconsin can secure a good part of this reputation, if she will.

It is my hope to attend this exhibition; if I do so, I need hardly say it would give me pleasure to be of any help that circumstances may permit.

If I could be present at your meeting, I would strongly urge that either the officers of the association or some special committee be charged with the duty of looking after these matters, with authority to make such arrangements as may seem best.

With the wish that you may have a pleasant and useful meeting,

I am, very truly yours,

G. E. MORROW.

## INTERNATIONAL DAIRY FAIR.

### BY CHESTER HAZEN, LADOGA.

*Mr. President, Ladies and Gentlemen:* — It is expected that I would make some remarks on the exhibition at our International Fair. I have prepared no paper and have but little to say. Our friend Mr. Hoard can give you the amount of cheese and butter exhibited and a list of the premiums and rewards, which I will not attempt. The exhibit was a very creditable one and the largest that we have had in this country, and I think anywhere. It was well conducted, and the dairy interest from the various states compared very favorably. I think we stood fully on an equal with the state of New York, though they might have had some cheese, which, if compared with ours, would perhaps have taken the preference, but there were a large number of cheeses there that the dairymen of this state would not put on exhibition. Wisconsin, through the help of Messrs. Smith and Underhill, made as fine a display of cheese as was on exhibition. Wisconsin butter was a credit to our dairymen. It carried off the highest prize of $250, and was salted with Higgins' Eureka salt.

I was expected to make some remarks in regard to the dairy fair and its influence over the progress we have made in our dairy products since the organization of this society, but I see we have not time for that subject, and will therefore leave this matter for Messrs. Hoard and Smith.

# INTERNATIONAL DAIRY FAIR.

### BY W. D. HOARD, FORT ATKINSON.

Editor Jefferson County Union.

It is pretty hard to tell anything about that dairy fair. It was the biggest thing that ever came across me, and I don't know where to commence. I will start in by saying, imagine a room four hundred by two hundred filled from one end to the other with butter and cheese. In the center were two large pyramids twenty feet high. On the right, the pyramid of Wisconsin, which contained four hundred cheeses, mostly of Wisconsin make.

On the left, a magnificient pyramid of foreign cheese. To me, that foreign exhibition was one of ceaseless interest. Go where I would, I would finally bring up in the region of the Cheddar, and as far as possible from the Limburg.

On the right of the long room was a show of dairy cows which was exceedingly interesting. There were some of the finest head from the leading families of dairy cows, commencing at the little cow from India, about four feet long and three feet high. She must give all cream. I didn't learn there was a particle of milk about her. That show of cows was the most pleasing, and proved especially attractive to the ladies, and that did me good, for it showed me that notwithstanding the disparity of our bringing up and condition, at the bottom of it all we are men and women.

The ladies of New York were perfectly wild over that fair, and they flocked to it in thousands. There was a very funny little incident that occurred in my own experience. At the request of one of the officers of the society, I accompanied six of the aristocratic ladies of New York, and explained to them what little I knew (which did not take long). As we were going back by the cows, I spoke in praise of the Jerseys, and their beautiful heads attracted particular attention. One lady said: "I hope you will excuse the various questions we ask, for we are as ignorant as children concerning all this, but it appears to us as being a splendid thing." You farmers and farmers' wives who are toiling every day, may think that what you do is lost in the world of culture, but it is not so. I tell you there is nothing to-day that interests the highest culture of the land more than a beautiful preparation of food. In conversing with them I said, none of you ladies have asked me the question I heard of a New York lady asking of a dairyman whose herd of cows she was visiting, and that was: "Show me the cows that give the buttermilk." This lady looked up to me as I said it, and I can't tell to-day whether she was in earnest or not when she said, "Certainly they have cows that give buttermilk."

Now one of the things, gentlemen, that impressed me in connection with that fair was this constant prayer, that the patrons could always see the culmination of their toil, and the honor paid to it by the highly educated and honorable of the world. I kept thinking all the time, I wish the cheese makers were there, and wish the men who underlie this mighty interest of to-day were there and could read the lesson before them. What would they learn? They would learn what one could learn from a picture. More than they can learn from teaching. That cheese represents one phase of it. That cheese is worth eighty-five shillings. This is worth forty-five. Between eighty-five and forty-five rests the difference in the profits to the toilers. Your interest reaches forth, and when you have once in your mind what these cheeses mean, you are determined to raise your standard of excellence and have accomplished what we have hoped and wished for, for years.

Another fact that came to my mind was the fine degree of intelligence that might be brought out to our cheese and butter makers by comparing these foreign exhibits. Where you could talk with the representative men in the enterprise. Men from England, Germany, Ireland, and everywhere where there is fine butter and cheese.

Representative men from Canada and nearly every state in the Union where these interests flourish. It only costs $50 to go down there, and I tell you, gentlemen, that no man could lay out $50 more profitably than by attending that exhibition. Another thing that I was interested in, was the different styles of packages for butter. I saw packages that I had never seen before, although I had been an earnest observer. I saw one that had been in use for ten years that I had never seen before. I saw the Waterberry system, a little round hoop sewed together and soaked in brine, and separated from each other by a square piece of the same material. These are piled up, one above the other, and packed in large boxes surrounded by salt and sent to Panama, arriving there in fine condition. There was another package there, that they ship butter in to various markets. The top is covered with glass. On each side was a receptacle for ice, and the whole was covered with a strong cover. When the package reaches its destination, the cover is thrown back, and the butter is brought to view under the glass and looks very fine. We ate old oleomargarine all the while at Earl's Hotel.

Mr. Smith was the first man that made the statement, viz: "That it was oleomargarine." He aroused my curiosity and I inquired into the matter, and ascertained that it was true. That butter is better than nine-tenths of the butter that is made. Its grand feature of excellence was that it had no taste. Now that is a big thing. My observation has been that most of the butter tastes too far the other way. It tastes wrong. Instead of tasting right almighty well, it tastes wrong almighty well. Now that butter is negative butter — they have struck the very centre of the question. It is butter that has no taste — it is grease, and the people take it down and thank the Lord that is no worse. Now you have got to beat that. They tell me that it can be made for from nine to ten cents per pound. What are you farmers going to do? Where are you going with your butter? This is a question that is going to confront you. Just think, one firm makes 35,000 lbs. a day. Why that is the most tremendous cow I ever saw. There are more brains in that cow than Charles Beach got over at Ft. Atkinson.

Now you must change the average butter made or your day is past, and science has got by you and beyond you. Some of the facts in connection with that exhibition were to me very important and interesting. I was proud of Wisconsin, and I will say right here that I am very thankful to Messrs. Smith and Underhill for the spirited manner in which they upheld us. Our people did not take hold of that show as they ought to. None of us have made a cent in Wisconsin by keeping out of the current; I am very thankful that Wisconsin made as fine a show as she did. Her exhibition of cheese exceeded that of any state in the west; but, with all this fine display of butter and cheese, there were only a few representative men from Wisconsin — six or seven being all that I remember of seeing. And I sincerely hope in the future that this state may be better represented.

# INTERNATIONAL DAIRY FAIR.

BY HON. HIRAM SMITH, SHEBOYGAN FALLS.
**President Northwestern Dairymen's Association.**

Any enterprise that is of sufficient importance to claim our attention, and to induce a large class of the most intelligent portion of the agricultural community to call a convention for the purpose of increasing their knowledge in the enterprise in which they are engaged, ought to represent a real want. If we spend the best portion of our lives in close observation and careful experiments, in order to perfect ourselves in the art of butter or cheese making, we should seize upon the most available means to reach that end. I know of no more rapid education than a competitory show of dairy products. We may take to ourselves the opinion that we make the best butter and cheese of anybody, and if we remain at home and it does not come into competition with others, we may go to our graves thinking we are the best makers. But in order to educate ourselves, we must enter into an examination of these products. They should set on a shelf side by side, and if it is better than others we should have the credit of it, but if it is not as good we need educating.

This is the great and good influence that grew out of this fair. It taught some egotists that there were better articles manufactured than theirs, and that they would have to take a necessary step to reach the desired excellence. I will say for those that did attend that they came in contact with the most intelligent and energetic men in the dairy enterprise in this or other countries. We there met Prof. Arnold, Samuel Willard and others, all known for life-long services in this business. By listening to these men and exchanging views we made an advance, and it was well worth all it cost to get there. Prominent men were engaged to lecture and a very fine organ has constantly been in use. In the evening we were regaled with an excellent band of music.

The dairy interest there took a step forward, and men engaged in it got some credit for the long years they have spent in bringing about some good in the world. This enterprise of the dairy is now claiming the attention of the statesmen, and we are receiving encouragement that but a few years ago we did not receive. It is good for them and it is good us.

When Wisconsin is called again to contribute to the International Dairy Fair I hope to see a general disposition all over the state to present a finer show than any of the western states. We don't fear any of the eastern states, for they admit that we have all the facilities for making good butter and cheese. All we lack is knowledge and experience to take advantage of all that has been discovered. It is no use to us in Wisconsin if great discoveries have been made in the east of making butter and cheese unless we keep up with the times and reap the benefit, and the only way to do that is to keep in the current of progress. Give aid by contributing to all the fairs. We have the best reputation for butter of any state in the Union, and it will return in money's worth. It is our privilege to profit by our advantages and keep in the front.

W. D. Hoard offered the following resolution, which was unanimously adopted:

"*Resolved*, That the thanks of this association are hereby tendered to Messrs. Smith and Underhill, of New York, and their manager, W. W. Ingram, for their energy and enterprise in placing Wisconsin cheese in so prominent a manner before the late International Dairy Fair."

Moved to adjourn until 2 P. M.

### *Afternoon Session.*

Convention called to order by President Dousman.

The committee on nomination of officers, through their chairman, W. W. Hoard, made the following report:

*For President* — Z. G. Simmons, Kenosha, Kenosha county.

*Vice Presidents* — Chester Hazen, Ladoga, Fond du Lac county; Hon. Hiram Smith, Sheboygan Falls, Sheboygan county; Hon. A. DeLand, Sheboygan Falls, Sheboygan county; Hon. H. F. Dousman, Waterville, Waukesha county.

*Secretary* — D. W. Curtis, Fort Atkinson, Jefferson county.

*Treasurer* — O. P. Clinton, Waukesha, Waukesha county.

Hiram Smith moved that the report be received and adopted. Carried.

W. D. Hoard offered the following resolution:

"*Resolved*, That in view of the present overcrowded state of the cheese market, and the higher relative price of butter, this association recommends to the dairymen of Wisconsin that they defer making cheese in the coming spring as late as possible, in order to relieve the market to that extent at least."

Hiram Smith — A market heavily loaded is a great detriment to both buyer and seller; and whenever this measure has been acted upon, by withholding early cheese from the market, it has had a marked effect in the matter for the better. We do not lose much by not opening the factory until May, and will relieve the present holders from suffering loss. It is, therefore, for our own interest to keep back early poor cheese, that will only clog the market.

C. Baltz — I do not think it is necessary for me to say anything, as I fully acquiesce in what the last speaker has said on the subject. My advice would be to make butter late, and not to commence making cheese until the 10th of May, as it is for your interest and that of your patrons not to clog the market with early hay cheese.

Resolution adopted.

## REPORT OF COMMITTEE ON RESOLUTIONS.

*Mr. President:* — Your committee on Resolutions beg leave to offer the following:

*Resolved*, That the heartfelt and unfeigned thanks of the members of this association are due and hereby tendered to the citizens of Kenosha, for their hospitality in entertaining its members.

*Resolved*, That the earnest thanks of this association are hereby extended to our retiring president, Hon. H. F. Dousman, and to the officers generally, for their untiring efforts in behalf of the society during the year.

*Resolved*, That the thanks of the Wisconsin Dairymen's Association are hereby extended to the Chicago and Northwestern, Chicago, Milwaukee and St. Paul, Lake Shore and Western, Wisconsin Central, and Western Union railroads, for the liberal reduction in fares made to the members of this association.

*Resolved*, That the thanks of the members of this association are hereby tendered to Messrs. H. K. & F. B. Thurber, commission merchants of New York, for their donation of the premiums for English Cheddar and Stilton cheese, shown at the late International Dairy Fair, which won the first prize at the great English cheese show. Also to W. D. Hoard for his energy and perseverance in securing and forwarding the same.

*Resolved*, That the thanks of this association are hereby tendered to Messrs. George S. Hart and Howell, of New York, for the elegantly designed silver cup which they presented to be awarded to the manufacturer of the best cheese made in this state.

*Resolved*, That we heartily approve of and fully indorse the movement lately inaugurated, looking to the permanent organization of an International Dairy Fair Association, and believing that such an association cannot fail to benefit the dairy industry of the country, as it will be the means of stimulating manufacturers to produce a first-class article of dairy products, besides being the means of disseminating a vast amount of information which will aid both manufacturers and producers of this large and constantly increasing industry, and assist the dairymen of Wisconsin to gain a cosmopolitan reputation for the excellent quality of their goods, which even now are greatly sought after in the large commercial centers.

D. G. CHEEVER,
J. A. SMITH.
R. P. McGLINCY.
*Committee on Resolutions.*

Chester Hazen moved that the resolutions be received and adopted. Carried.

## DAIRY COWS, AND HOW TO BREED THEM.

BY G. L. WRENN, BURR OAKS FARM.
Highland Park, Illinois.

In the progress westward of the star of empire, King Cotton has been shorn of his royalties. His scepter, crown and throne are gone.

The privileges and prerogatives of sovereignty have all been given over into the hands of Queen Cow. She rules supreme. All yield to her unquestioned allegiance. As loyal vassals we convene here in council to-day.

The only point in the matter about which there can possibly be any serious divergence of opinion, is as to the lineage of this new sovereign. Is she a native, with origin veiled in obscurity? or does she belong to the middle class of grades, or is she to be ranked with the aristocracy of thoroughbreds? Is the blue blood that courses through her veins Texan or Short-horn, Hereford or Devon, Holstein or Ayrshire, Guernsey or Jersey?

I am well aware that in presenting an opinion looking to the solution of this problem, I labor under the serious disadvantage of being known as somewhat intimately identified with the interests of one particular breed.

My misfortune in this respect may possibly be so great as to invalidate my testimony. But I have a great deal of confidence in the average good sense of an assembly of dairymen, especially Wisconsin dairymen. They are not so opinionated as to refuse a respectful and impartial hearing to those from whom they may differ. Everything relating to the interests of their pursuit will be received for what it is worth, irrespective of the source from which it emanates.

But even among so sensible a class as dairymen, it has not always been safe to advocate an innovation. Up to a very recent period it required something akin to heroism, something of the stern stuff that martyrs are made of, to lift one's voice in a gathering of this kind, in favor of a certain much-abused breed; and even to this day in some localities, to speak of the aforesaid breed in any other terms than of approbrium and ridicule is to forfeit one's reputation. The expression of a favorable opinion is an unpardonable heresy. Something of the character of the obstacles that these branded heretics have had to contend with was shown by a remark of one of the officials of the Indiana State Fair at Indianapolis, last fall, to the effect that he regarded the introduction of such a hide-bound, raw-boned, scrawny breed as an actual detriment to the cattle interests of the state. His words and his manner indicated that, in his estimation, the management were conferring no inconsiderable favor upon these breeders in permitting them to exhibit their stock, and this in face of the fact that the exhibit was really the redeeming feature of the fair.

In what I have to say as to the best cow for the dairy, I have in mind exclusively butter dairying. In my opinion, the cow that is equally adapted to all dairy purposes has failed thus far to put in an appearance. In any event, the cow whose merits I shall briefly discuss, with all her superiority, makes no such extravagant claim.

As a matter of course you will expect me to champion my favorites, the Jerseys. But I promise at the outset that there shall be no special pleading.

I am fully convinced that all that is needed among intelligent dairymen, devoting their attention to the manufacture of butter, to induce them to secure a speedy and large infusion of Jersey blood into their herds, is an acquaintance with the salient facts that can be arrayed in favor of this particular breed.

Taking into account the number of recorded animals, those unrecorded, though entitled to registry, and those that, while pure breed, are ineligible to registry on account of some technical defect of pedigree, there are probably in this country at this time, in the neighborhood of twenty-five thousand Jerseys.

If to these we add all the high grades, the distribution of Jerseys will be seen to be quite extensive, outnumbering, in fact, every other except Short-horns, showing a very large and growing demand for this famous breed of cattle. And this, it must be remembered, has taken place within little more than a quarter of a century.

And notwithstanding this rapid and wide distribution, representing the Canadas and nearly every state and territory in the Union, the prices have been on the ascending scale, making an exception in this respect also in their favor. Furthermore the sales are the readiest, and at the highest figures, in those localities where the Jersey is the best known.

But something more than general distribution and high prices are required to make a complete argument as to the intrinsic merits of the Jerseys.

What have we to show for the one hundred years of careful breeding on her native heath, and for the twenty-five years in her adopted home, with the single object in view of securing a superior amount of butter producing qualities? Do the facts indicate that the effort has been a successful one? In the May number of the National Live Stock Journal I presented a summary of facts bearing upon this question:

Mr. Moses Y. Tilden's herd at Lebanon, N. Y., produced in one year, an average of 333 pounds; and the herd of Mr. Thomas J. Hand, at Sing Sing, produced an average of 406 pounds. Of individual yields there are many authentic reports.

Mr. Newton's cow Abbie gave last year 486 pounds of butter, besides all the milk and cream used by the family. Mr. Thomas Motley's cow Flora gave 511 pounds in one year; her largest yield for one week being 14 pounds and her smallest 6 pounds. The famous Jersey cow Pansy (H. R. 1,019), gave 572 pounds in twelve running months.

But I need not go outside the limits of your own state to find very satisfactory and reliable illustrations of this superiority.

In a communication to the Country Gentleman, November 21, 1878, Mr. H. S. Durand, of Racine, gives the following record of his Jersey cow Hawthorne (1,889): Calved April 28th, and gave in 180 days following, 5,256 pounds of very rich milk, averaging 29½ pounds per day. According to the tests made, this milk would have produced 328 pounds of butter, or on an average of 12¾ pounds per week for 26 weeks. Her highest yield was 41 pounds of milk per day, and her lowest was 19 pounds.

Mr. F. R. Starr, of Echo Farm, Litchfield, Conn., of whom Mr. Durand purchased Hawthorne, gives the following figures in regard to his centennial award Jersey cow Filbert (3,630), a half-sister of Hawthorne: From October 29 to December 31, 1878, she gave 2,665½ pounds of milk, averaging for the 64 days over 41½ pounds per day. Her present yield is 40 pounds daily. Her milk for three days in November, made 6¾ pounds of butter, 2¼ pounds per day, or at a rate of 15¾ pounds per week. Her weight is 1,095 pounds, so that she is giving more than her own weight in milk per month. A friend of mine, Mr. Thomas Lyman, of Downer's Grove, Illinois, has a young Jersey cow, that during the month of June gave on grass alone, 835 pounds in 30 days; her weight being 730 pounds.

Dr. Sturtevant, editor of the Scientific Farmer, and one of the proprietors of the famous Waushakum Farm, and widely known as a breeder of Ayrshires, says, in a report of some very interesting and exhaustive experiments, that the milk of the Jersey, from the greater size of the globule and the character of its covering, churns more quickly than does the Ayrshire or Dutch milk, and weight for weight produces more butter; 10 ounces of Ayrshire milk produced 76 grains of butter, while 10 ounces of Jersey made 136 grains.

Another well established fact in favor of the Jerseys is the high color always imparted to the butter. The general introduction of this blood into our butter dairies would speedily do away with the very questionable custom of artificial coloring, or, putting it more mildly, solve the problem as to the best coloring compound.

This high yellow color peculiar to the Jerseys, according to Dr. Sturtevant, is attributable to the fact that the fats of the Jerseys, as a race, are colored with an orange pigment which remains in the butter.

But even with such an array of facts I do not believe that pure bred Jerseys, taking everything into account, are as well adapted for the average dairyman as the grade Jersey — the honorable gentleman from Whitewater to the contrary notwithstanding.

But I am not without hope even in regard to him, for I am credibly informed that in spite of Mr. Beach's unfortunate experience with his grade Jerseys, he has recently placed at the head of his breed a pure bred Jersey bull. So that, though his case is a very obstinate one, I have no doubt but that if he will bring to bear a little more of that brain-power to which he referred this morning, and of which he evidently has an ample supply, his voice will one day in the near future be lifted up in this association in favor of the Jersey grade.

While in attendance some months ago upon a Farmers' Institute held at Marengo, Ill., under the auspicies of the Kishwaukee Farmers' Club, I took occasion to visit the home creamery of Mr. Wm. A. Boies. After an inspection of factory and stables, the conversation very naturally ran in the direction of dairy stock.

Having heard him spoken of as among the strongest opponents of the Jerseys, both pure bred and grades, I was quite surprised to hear him say with unwonted earnestness, that where butter was the object there was no cow to compare with the grade Jersey. He admitted that he had been strongly prejudiced against them, but that an actual test of their merits had completely won him over.

There is, perhaps, no breeder in this country, or for that matter, in any other, better able to speak intelligently and advisedly on the question as to the best cow for the dairy, than Mr. Thos. Fitch, of Connecticut. He is a veteran in the business of breeding, his operation, dating back to 1844.

He has been handling Jerseys for upwards of quarter of a century. His first purchase was made principally for the purpose of crossing them with the different breeds then on his farm; his idea being that a grade could be produced that would be more valuable for the dairy than a thoroughbred of any kind. In all his breeding operations, no less in perpetuating pure blood than in the handling of grades, he has always prided himself on placing a higher premium on performance than pedigree. His motto has been, to use his own words: "Real merit, not fashionable breeding, with long or short pedigrees or parentage." He has, in fact, a very decided antipathy for so-called fashionable breeding. From the outset he has kept pure bred Jerseys, among them some very valuable animals, whose butter record ranks them with the very highest. His Myrtle 2d has a record of 15¾ pounds per week; the yield of another reached 17½ pounds. But after an experience of twenty-five years, he still holds tenaciously to the superiority of the grade over the pure bred for all practical dairy purposes. He has in his herd at present, two and three year old high grade Jersey heifers, that have made this season on grass, each 11 to 12½ pounds of butter in seven days. His own confidence in their superior excellence is evinced in his offer to match one of them, on a wager of $500, against any registered heifer of her age owned by a member of the A. J. C. Club.

Mr. Fitch has probably made more experiments in the way of crossing different breeds than any man living. He began by coupling the Devons with the Ayrshires, but without successful results. He has recently given as his opinion that the cross of a Jersey bull with an Ayrshire cow produces the best cow, for all purposes, in the dairy, and that with whatever breed you cross a Jersey bull, the infusion of his blood adds to the richness of the quality of the milk. The hardiness of the breed crossed on is not impaired by the cross, and, as a rule, the udder and teats, as well as the carcass of the grade, are enlarged; so that you really have a better cow in all points in a high-grade Jersey than a thoroughbred, showing superiority in production, economy in keeping, form, size, and beauty.

Having said this much in regard to the cow I would select, I shall say only a word in closing as to the matter of breeding. If butter is the object, let everything else be made subservient to this. I have no sympathy with the idea that it is possible to combine flesh-carrying and butter producing qualities in the same animal. It never has been done, and in my opinion every effort in this direction is doomed to disappointment. The perfect dairy cow is the cow that is perpetually diverting the fat of food from her joints and ribs [to her udder. The butter type and the beef type are essentially different; they are necessarily antagonistic; they are among the things that God has never joined together.

On this point Prof. Brewer, of Yale College, gives this sensible testimony: "The farmer who tries to breed a horse for all work will as surely fail as if he were searching for the philosopher's stone. A dog that would hunt foxes, kill wolves, tend sheep, kill rats, course rabbits, and watch the house equally well, would be a wonder. No one expects to have sheep for general use — for fine wool, coarse wool and mutton. Why should we ask a similar impossibility of a horse or cow?"

It may be possible in time to breed and feed the Jersey cow into the form of the Short-horn, but success in this direction will inevitably be at the cost of those qualities that have given the Jersey her world-wide reputation.

So if butter is the object, we must breed for butter; for this and nothing else. The all-purpose cow, if not a prodigy, has her prototype in the Jack of all trades and master of none. The sooner the idea of the possibility of such a cow is given up the better for all concerned — better for the reputation and pocket of the breeder, and better for the thing bred.

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## DAIRY COWS, AND HOW TO BREED THEM.

REMARKS by R. S. HOUSTEN, C. HAZEN and PROF. ARNOLD.

R. S. Housten — Mr. Wrenn's figures in regard to certain cows were very eloquent in favor of the Jerseys. I wish he would give us the figures on his own cows.

Mr. Wrenn — I have an animal whose milk, tested eight months after she dropped a calf, gave one pound a day, and her mother gave four pounds for the week during which the test was made.

President Dousman — Will Mr. Housten tell us about his own cows.

R. S. Housten, Kenosha — My herd consists of 50 cows from two to eight years old, from half to full bloods. My stock does not show as well as it might, as I have sold almost all my young stock — all that were coming two years old. I have found the Jerseys hardy, docile and easily kept. The following statement shows the milk and butter each month of 1878. The milk was weighed as soon as drawn from the cow. It was put in the Hyde double-channel pan. The butter was weighed after working, ready for the salt. We began the season with 56 cows. During winter and spring we sold six. We have two families of 14 persons to supply with milk. I have deducted 20 pounds a day for this:

| | Lbs. Milk. | Lbs. Butter. | Lbs. Milk for one of Butter. |
|---|---|---|---|
| January | 18,408 | 899 | 20.4 |
| February | 16,914 | 811 | 20.9 |
| March | 23,321 | 1,006 | 23.1 |
| April | 28,533 | 1,321 | 21.6 |
| May | 36,997 | 1,750 | 21.1 |
| June | 31,701 | 1,532 | 20.7 |
| July | 27,246 | 1,286 | 21.2 |
| August | 27,623 | 1,319 | 20.8 |
| September | 26,280 | 1,272 | 20.6 |
| October | 24,695 | 1,245 | 19.8 |
| November | 20,856 | 1,029 | 19.7 |
| December | 23,414 | 1,200 | 19.5 |
| Total | 305,493 | 14,670 | Av. 20.8 |

Our cows were fed from January to May on corn meal and bran, equal parts, 10 to 12 pounds per day; through the month of May we fed bran alone; June, July and August, grass; only September and October we fed sowed corn; November and December, corn and oats, equal parts, with corn from the stook; to-day we feed corn meal and bran. The herd consists of 50 cows of one-half, three-quarters and full blood. Ages, 5 two-year olds, 8 three-year olds, others up to eight years old.

One great reason of our better success the last part of the year over the first was in handling the milk. We use the Hyde double-channel pan. The first part of the year we used it without water under the pan. Since that time we have run water in cold as well as in warm weather; heat of room 70 degrees.

Q. What is the weight of your cows?

Housten — I could not tell exactly, but should think about 1,100 pounds.

Q. Do you have a night pasture for your cows?

A. No, sir.

Q. Does it not make them uneasy to milk while eating?

A. No, sir. They stand quietly.

Q. What does it cost to keep cows as you keep them?

A. Really, I don't know.

Q. Is ten pounds light feed?

A. Well, fair feed.

Q. Do you feed it dry?

A. Yes, sir. We used to feed it wet and found we lost by it.

Q. When do you skim it?

A. When it becomes loppered, not before.

C. Hazen — I did not expect to say anything upon the subject of dairy cows, but hearing some pretty big stories, and as I am breeding Ayrshires, I wanted to make a few remarks here. I have fifty cows, and I tested one in August that run 18 per cent. of cream. Another gave me 40 pounds of milk a day that made two pounds of butter. "Old Creamer" was an Ayrshire. She weighed 1,080 pounds, and gave in the summer of 1873, 303 pounds of milk in three days in June, and an average of 86 pounds through the months of June and July, and held out well in the fall.

President Dousman — The man who tells the last story always has the best of the argument.

Prof. Arnold, being asked his opinion, said: I have nothing particular to say upon this subject, because, although I have been in the dairy business, I do not now own a cow and no one can accuse me of partiality in this matter. But I was a little amused with the preceding speaker. I had the fortune to attend a Dairy Association in Utica, New York, and Old Creamer was quoted as belonging to three different breeds, and he was claimed as an Ayrshire, a Jersey, and Short-horn. Now the truth is "Old Creamer" was purchased from a drover, who knew nothing at all of her origin. Knowing these facts, I could not help laughing at the remarks of the gentleman.

With all these cows we ought to make some progress in cheapening the cost of milk so that the dairymen can have a little margin allowed them. We are a great ways from reaching the top of the round in the cost of milk. Prof. Roberts, of Cornell University, who has been traveling in Holland and looking into the dairy interest there, told me that they paid twice to three times as much as we do for their cows, and they are purchasing grain from your raising to feed their cattle. They have to pay from $500 to $1,000 an acre for their land and have enormous taxes, yet they compete with you in the markets of Great Britain with their cheese.

How can they do it? Think of your land worth $50, where theirs is worth five times as much, and then compete with you. You complain that you can hardly make both ends meet. How do they do it? They select the very best cows they can get that will yield milk, and then they give their cows the very best feed. They don't feed on grass that is cut after it is dead ripe. They don't feed on straw, but cut their grass when it is green and dry it as choicely as you would a bunch of herbs, and everything is as neat and clean as possible. Their stable surrounds their house, and is usually on two sides, sometimes on all sides. The family live in the middle. One always has to go through the stable to get into the house, and everything is neat and clean and free from odor. Now such a lesson is worth something.

Q. Hollanders keep their cows in their stables and not in the pasture?

Prof. Arnold — They are kept in the stable and made very comfortable. In the warm weather they are blanketed to keep the flies off. They are petted a great deal and fed well.

Q. And always allowed to sit at the first table?

A. Yes, sir.

D. G. Cheever — As "Old Creamer" is not an Ayrshire, she may yet be claimed as a Holstein. At all events I want to say a few words in regard to them.

# HEAT IN THE MANUFACTURE OF CHEESE.

### BY J. A. SMITH, SHEBOYGAN.

One portion of the topic assigned me speaks of "improved methods and apparatus" for the manufacture of dairy products, and suggests that dairymen should know more about them, to the end that they may be more successful competitors in the dairy trade.

I doubt not the improved methods and apparatus are far more numerous and varied than my information extends concerning them; for the field of investigation and experiment is a vast one, and in it are toiling many of the prominent scholars and scientists of our times. Without making pretensions to the scientific attainments which the professional chemist must have to intelligently conduct the operations of his laboratory, I have yet been an ardent student in the practical field of cheese making, and am able to report some progress in that field.

The point to which I have directed the most thought and effort, has been to better apply *heat in the manufacture of cheese.*

Some years ago, when more of a novice in the business than now, I was led into an investigating train of thought by the writings of the Hon. X. A. Willard, a gentleman to whom the dairy world is much indebted for some standard books and many addresses upon the subject. He had been giving descriptions of the many popular methods of heating milk and curd, and illustrated some of them with cuts of their respective devices. I remember he summed up by saying, that the one great need of heat in cheese making was to have it uniform, so that all parts of the curd would be heated almost simultaneously to the same temperature, and that the field of invention in that direction was yet open and large; for, not understanding the comparative excellence of many of them, the perfect cheese making device for heating milk and curd uniformly was yet to be invented. I then thought that a singular remark to make, in view of the claims the respective manufacturers made to having solved the problem. I see now that it seemed singular to me at that time, because I did not then comprehend the need of heat being applied as nearly uniform as it is possible to apply it. This led me to inquire what would be a perfect heating apparatus for a cheese vat. Without imagining that perfection, in the absolute sense, is within finite reach, I concluded that if I had a cheese vat filled with milk, beside one of the spouting hot-water springs of the Rocky Mountains, if the temperature of the water was 140 and I turned a flood of it into the water vat, and had a discharge pipe of equal dimensions, the rapid flowing, warming flood, for the purpose of heating milk and curd, would be near enough perfection. But as we cannot have such natural founts of warm water to draw from at points where the milk is produced, the next best thing is to make an artificial fount of warm, rapidly flowing water around the milk vat. Hence, I argued, we approach our highest conception of the perfect in proportion as we devise the simplest and most effective method to cheaply utilize a flood of water, artificially warmed.

Oftentimes men lose the use of the most potent means to compass a needed end, by either overlooking or despising simple and cheap methods. To read descriptions of elaborate, costly and intricate methods of attaining a simple result within easy reach of the practical man, often bewilders the common mind, and leads men to think that the character of a product — of a cheese, for instance — is fixed by the gorgeousness and expense of a fine building for a pantry, by a steam-boiler and system of pipes, faucets and stop-cocks, and all the paraphernalia of a $5,000 to $10,000 factory; when the truth is, the prime requisites for an excellent result are first, good milk; and second, from one to two barrels of water heated to 140, to place around the milk vat, so arranged that it can be applied and withdrawn at will. This will make a gilt-edged cheese, with the right brains to preside over the vat, if it is placed in the humblest back kitchen in America. You can't do any better than that with the costliest, most elaborate apparatus if placed in the best parlor of the White House.

In this I am not arguing that good buildings and convenient tools and apparatus are not good things to have in cheese making ; but only to claim that the attainment of a good result is, at the vital point, within the reach of extremely humble and simple means, and however intricate and expensive may be the methods of obtaining, conveying and imparting heat to milk, it all ultimates in this : plain warmed water does the real business, and does it well or ill in proportion as the heat is imparted uniformly, gradually, and not at so high a temperature as to melt the buttery portion (which is the best portion) and drive it off with the whey. Though we have plenty of ignorant cheese makers who do not know that heating some portion of the curd to near the boiling point, and then mixing that with curd not more than 84 will make a poor cheese, and poor keeping cheese, yet the more intelligent now know that uniform heat is a great desideratum. A fact bearing on this point. In the fall of 1877 several of the factories of Chenango county, New York, stored their cheese in New York city for the winter, expecting better returns from sales in the spring. It was found in the spring that the cheese of some of the factories had sadly deteriorated in quality. As there seemed to be no great difference in them when put in store, the fact occasioned much inquiry, and it was finally determined to choose a committee of experts from their local dairy association to examine the cheese and the premises where made, and, if possible, ascertain the real cause. The work was done, and the report stated that the cheese made in factories that had the poorest facilities for heating the milk and curd uniformly during the process of cheese making, were the ones that had come out poorest in the spring.

Before "cooking the curd" was practiced, or acid developed in the curd, in those early days when cheese makers had their sweet curd in the hoop by 9 o'clock in the morning, the cheese made were not ready for market or consumption till they were two or three months old, the ripening process requiring some weeks extra time to effect what heat in the vat, judiciously applied, will effect in an hour or two. So I argue that the reason cheese, not uniformly heated in the vat, do not cure so as to make a good article, is because there are various kinds of curd in them; some with the butter melted out, some cooked to mature in twenty days and some in three months. There is an "irrepressible conflict" between the particles of curd in the matter of curing; and the result is not satisfactory.

I doubt not there are scores and hundreds of cheese makers who have made cheese, good, bad and indifferent, for years, who have never heard of a conclusive reason, founded on chemical laws, why high heat, from either fire or steam, directly applied, or very hot water, should never be applied to a cheese vat, however cold may be the milk, the weather or the vat room. I once heard a cheese maker recommending a heating apparatus that heated the water very nearly to the boiling point, and boasted how quickly he could heat his milk and curd. But I learned that he took eleven pounds of milk to make a pound of poor cheese, and could not open his factory the second year for want of milk. Within the present month, I wasted a half hour with a cheese maker of a quarter of a century's experience, advocating applying a heat of not more than 150 to the outside of a milk vat, at any point of it, while he contended that to use water at 200, which is nearly boiling hot, was better than to wait. The chemical reasons involved, showing him wrong, were not comprehended at all. Such men work in utter ignorance of the laws and philosophy of cheese making.

It is the fact that a heat of 140, or 150 at most, is the maximum that ever ought to be applied to the outside of a cheese vat, for the purpose of raising the curd not above 100, that makes it so difficult, if not impossible, to directly apply either fire or steam to the stationary body of water in the water vat, without heating some portion of the water too hot, and thus make some particles of the milk and curd so hot as to cause permanent chemical separation of the elements requisite for a good cheese. The high heat of fire or steam darts through the water medium, and even through a board, before a diffusion can take place. However high, and broad, and persistent the claim may be made that the diffusion of heat thus applied is good, it must ever fall behind in evenness of heat, with a swiftly circulating flood of water warmed to the right degree before it is applied.

A wrong or ignorant use of even a comparatively good apparatus, is as fatal to success as the use of one defective in its construction. The point is, whether an apparatus that makes its best results in skillful and competent hands, is as good, better or worse than another in equally skilled and competent hands; and then which is the simplest, cheapest, most durable, and most easily managed, and least likely to fail in the hands of those either skilled in or learning the business. The objective point of all these devices for cheese making, except those that use dry steam, is to get a sheet of evenly warmed water around the sides and at the bottom of the milk vat. "Only this and nothing more." There was once in use a system that discharged a stream of hot water into a water vat, and discharged the water to the ground when it had obtained a given height in the vat. When water at the right temperature was used, the result was good. But the apparatus went into disuse, partly because of the great expense of manufacturing them, and partly because of the great waste of fuel their use involved, for they were constantly heating a fresh supply of cold water, which, when heated, was used for only a few moments and then wasted. There was also great liability to use the water too hot, for it was drawn from a steam boiler, and in those days there was less known in regard to the proper temperature required.

There is another apparatus now in use called the "Circulating Coil Heater." It is a compromise between the one previously named and the steam-heated vats now largely in use. Part of its heated water is drawn from an elevated tank, but the circulation is maintained by the power of steam in a coiled pipe, part of which is in the fire and part in pipes under the milk vat. It may, in truth, be called an intricate, and, as compared with self-heaters, an expensive apparatus; but it makes the high claim of ability to produce a pound of cheese from less milk than any vat heated by the direct action of fire, or by steam discharged into a stationary body of water — its claim being predicated on the point that its evenness of heat is secured by a rapid circulation of the contents of the water vat to and from the coiled pipe in the fire, several feet from the vat, and that a heat of above 140 is seldom attained for the water in the vat. If the high claim that is made for the superiority of evenly warmed water for use in the cheese vat, over that heated unevenly after being placed in the vat, has an essential foundation, then it must be because uneven heat disintegrates the elements so that a part of the weight is wasted.

The buttery part of cheese is that most easily dissipated by heat, and a loss of any part of it leaves the cheese more exposed to deterioration in the process of curing. So the loss of a portion of butter at the time of making, will result in the loss of another portion in weight on the curing shelf because of the first loss. A cheese maker who knows how a sour cheese shrinks — one almost devoid of butter — will see the point, and concede that it is essential to retain all the butter possible in the cheese, not only because of the actual weight saved in green cheese, but as a preservative and retainer of the requisite moisture for a first-class cheese. This may seem like drawing it fine, and it is, for one day's comparison, but compute its gain or loss in manufacturing a million pounds of milk, and you see you have gained or lost the cost of a vat, if not more. Besides, it is the close attention to these fine points, that, in the language of the topic under discussion, we, "as competitors in the dairy trade of Wisconsin, cannot afford to neglect." To learn about these fine points is what makes the difference between those who gather here to be taught and to teach, and the indifferent crowd our secretary wants "combed down" for not coming. Attention to fine points makes the difference between a quick sale of 30 cent creamery butter and the ordinary article that drags at 15 cents; between the healthy, wholesome, mild and firm gilt-edged cheese that brings the money quick even in depressed times, and the hundreds of tons for which there is no market. Attention to fine points and the reputation that grows out of heeding them, makes a difference of forty pounds sterling per 20 cwt. in the price of certain makes of English cheese — a gain of more than the average value of a ton of Wisconsin cheese for the season of 1878. It makes the difference between radical, wise progression in the right direction, that the men of this association meet to proclaim and acclaim, and invite the learned and eloquent and highly reputed from other states to aid them in diffusing the needed information. Profit, success and paying competition hang more tremblingly upon the saving of even a fraction of a pound of milk for making each pound of cheese, than many suppose.

Having some knowledge of several devices for cheese-making, and a partial experience of the defects of some, I concluded that a circulating flood of previously warmed water of the right temperature to and from a cheese vat, must be a close approximation to the perfect in a cheese-making apparatus. So much seemed to be solid ground that it could not be *less*, even if it were not *more* effective; and so for the simplest way to get what all are seeking in a cheese-making apparatus — uniform heat under complete control — was what I sought, and a kind of vat of which I used the past season.

Its claims for excellence are founded on four main points: First, there is no better known medium for imparting heat to the outside of a milk vat than that of a copious stream of flowing water previously warmed to the right temperature. By that means you have at once, and substantially in perfection, the end you aim at when you apply steam or fire directly, to the heating of a stationary body of cold water. It is a prepared medium instead of one to be prepared.

Second. The water can be made to circulate so as to impart its heat to the milk and curd by the action of a large pump, worked by hand, and by the force of gravity returning the water to the heater, in which it can be re-heated, and from which it is re-pumped cheaper than by any other means, in any factory that does not require the use of more than two 5,000 pound vats.

Third. There is no way of heating the amount of water necessary for cheese-making more economical of fuel, than by means of a fire-flue placed in the water. This point is practically conceded by the manufacturers of locomotives and other effective steam boilers.

Fourth. It is a great saving of fuel and water to re-heat the water that is very nearly warm enough, rather than run it to the ground and heat a new supply.

I may rightfully use this platform of our association to say to all cheese-makers, that the one imperative need of successful cheese-making is a mild, sufficient, uniform heat for raising the temperature of the milk and curd to the right degree, and hold the curd at that point as long as desired. This is general and needed information, especially to novices in the business, and it is the business of our society to disseminate reliable facts in relation to dairy interests. In the discussion of my topic, "Heat in the Manufacture of Cheese," I have aimed more to show how it may better be applied, and hope, in doing so, that I have not unwarrantably occupied a position that I have mainly used to discuss a principle that is vital in cheese-making, whatever kind of vats or heaters may be used.

As competitors in the dairy trade, Wisconsin farmers cannot afford to neglect attending the annual meeting, becoming members and thus learning what they can of

# IMPROVED METHODS AND APPARATUS.

BY W. H. MORRISON, ELKHORN.
Secretary Walworth County Agricultural Society.

We seldom appreciate or are much benefited by information or knowledge that comes gratuitously without effort. I think some thought like this must have prompted friend Curtis, the efficient secretary of this association, when he penned me an invitation to prepare an article upon the above caption. He well knew that I was not a member, had never attended any of the annual meetings of the society, and although the reports, which have been kindly furnished, have been carefully perused and digested, it is far from attending the meetings and receiving the enthusiasm and inspiration generally present at such social gatherings.

The annual meetings of all societies or organizations bring together, after a year's labor, those working in a common interest with the same great object in view. Here, ways, methods and facts are interchanged, vital questions discussed, and in fact a comparison of causes whereby certain effects have been obtained, which are of great value to the dairyman.

The experience of a year that each makes by the different methods employed; the facts adduced; the friendly contest for supremacy are events that each will take to their homes, which will be a mine of thought and encouragement through the strivings of the year that lies before us.

Although having lived nearly thirty years on a farm, I cannot give you any experience in dairying, for the simple reason that my inclinations generally, and in fact universally, led me when a boy to perform some other chore, incident to the morning and evening duties upon all farms to that of milking, and maturer years has failed to develop any relish in that direction; consequently you will notice that your secretary has made a very grave mistake in assigning any topic to me in connection with the dairy, and whatever thoughts I may offer will have to be of a general nature.

Societies for the promotion and study of agriculture, and for the development of all industries that are so intimately connected with the farm, have sprung up throughout all parts of our land, and the result has been greatly beneficial to the producing classes. Mainly through their efforts are we indebted to the advancement and progress, not only in agricultural and horticultural pursuits, but also in the improvement of our herds, and the dairy interest of the country.

No industry has made such rapid strides as the one that this convention has met to expend their best thought and labor upon; it occupies no secondary place in the great industries of our state. Even Hon. X. A. Willard, of national authority, speaking of the International Dairy Fair, said: "The splendid exhibit of Wisconsin cheese was a great surprise to some of our New York dairymen, who have been under the impression that about all the really fine cheese comes from certain favored localities in the Empire state." It is not necessary for any of us to indulge in any great stretch of the imagination to take us back to the time when Wisconsin cheese was like the fiat delusion of the late political struggle — it could *hardly* be considered a *legal tender*.

There is nothing that gives me more pleasure and in which I take more pride, than thinking of the progress of the great northwest. No standard of wealth and social refinement is too high for the people to aspire to and emulate with industry, energy and temperate habits; with productive fields and increasing flocks and herds, and the *entire world* for our market, what have we to fear; how much to encourage and stimulate us to greater exertions.

Look at the misery and distress of England with her watchword of "Free-Trade." Already are her people clamoring for protection, which in the end inevitably means a revolution of the working classes. Who knows but royalty, that festering cancerous sore that blights and paralyzes Europe, is near its downfall?

Excuse the digression, but the spirit of "'76" will always overleap all barriers when the extravagancies and luxuries of royalty are permitted to exist at the expense of the poor, destitute, starving laborers.

Although the reputation of Wisconsin cheese and butter is such as to enlist the heartiest praise of eastern consumers and eagerly sought for by the trade, it will not do to rest content with present attainments. The world is progressing the same in dairy matters as in all other industries, and only those who convene and discuss the latest and most improved methods, will in the end succeed.

The west certainly has the advantage, not only in cheap lands but a greater variety of pasturage. Corn, roots, and in fact all the elements that will produce superior butter and cheese, are at our disposal; and as the Israelites of old were told to go forward and possess the land, all that remains for the dairymen of the west is to press forward and hold the situation that you have so nobly earned.

# THE HISTORY OF THE DAIRY INTEREST IN WISCONSIN.

BY W. D. HOARD, FORT ATKINSON.
Editor Jefferson County Union.

*Mr. President and Members of the Convention:* — It is no easy task to do even remote justice to this subject. It is too big a thing. It is wonderfully and fearfully scattered besides, and I have not had sufficient time in which to gather all the materials which exist, and which must be collected before any attempt worthy your consideration can be presented. It is easy for us to see what Wisconsin dairying is to-day, but to tell what it has been, to trace its feeble beginnings, its first slight hold upon the convictions and practice of a few, its spread in certain districts and almost total exclusion from others even to this day, embraces a very large range of facts which our short essay cannot encompass.

The first cheese made in Wisconsin of which I can gain any knowledge was manufactured by Chas. Rockwell, in the town of Koskonong, Jefferson county, in 1837. Mr. Rockwell is still living, although at quite an advanced age.

I see no better way of doing than to give you what few facts I have gathered. I find at the outset that but a small portion of the state has much, if any, history in this matter. The counties of Jefferson, Sheboygan, Fond du Lac, Waukesha, Brown, Walworth and Kenosha are the pioneer dairy counties of the state. Within the last five years the business has assumed considerable importance in Columbia, Richland, Calumet, Dodge, Iowa and Manitowoc counties, with a few cheese factories, creameries, or private dairies, scattered about in other outlying counties.

### JEFFERSON COUNTY.

The first cheese made in Wisconsin of which I can gain any knowledge, was manufactured by Charles Rockwell, of Fort Atkinson, in 1837. Mr. Rockwell has ever since been in a greater or less degree a dairyman, and is yet numbered among the representative men of that industry. In 1840, Mr. A. Pickett commenced with a dairy of ten cows in Lake Mills, and I believe his son, Mr. J. G. Pickett, in an able paper on "Pioneer Dairying," read before this association at the last meeting, fully substantiated the claim of the senior Pickett to be the originator of the factory system. Milo Jones, Esq., present mayor of Fort Atkinson, was another pioneer dairyman. His cheese bore a wide reputation for excellence many years ago. He was a pioneer in other ways, for he was the first man of whom I have any knowledge in that section who broke away from the senseless practice of selling his butter at the store, and proposed to ship it to the city and sell on its merits.

The first cheese factory was built by Marshall & McCutcheon, of Cold Spring, I think, in 1865. They now operate seven factories, with an aggregate make of nearly a million of pounds. About the same time, Stephen Faville, of Lake Mills, built a factory. Mr. Faville has been an honored member of this association since its organization, and probably no man in the state has been more active and efficient in promoting the true interests of this pursuit. Among other pioneer dairymen of the county, we mention H. C. Drake, E. P. Ingalls, Q. C. Olin, now of the firm of Olin, Crossfield & Co., who operate five factories, A. D. Faville, Z. Willson and E. King. The production of chesee has grown from about 200,000 pounds in 1870, to about 2,500,000 pounds in 1878. A large amount of butter of excellent quality is made here, a large portion of which is shipped by the makers direct to various cities. The value of the dairy product of this county in 1877, we estimate to be nearly a half million of dollars, or nearly one-eighteenth of the assessed valuation of the county.

### SHEBOYGAN COUNTY.

Through the kindness of Hon. Hiram Smith, of this county, I am enabled to lay before you the following details of early Sheboygan county dairying:

"At the first annual fair of the Sheboygan County Agricultural Society, held at Sheboygan Falls, September 24th and 25th, 1857, N. C. Harmen was awarded the first premium ever offered for Sheboygan county cheese; in 1858 J. I. Smith procured the first cheese vat, and erected a building, boarded and battened, groat filled in between the studs, and the whole lathed and plastered inside; and candor compels me to say that I have never seen a better room for curing cheese. Mr. Smith gathered the curd from the farmers before scalding, hauled it to the factory and cooked, salted, pressed and cured the cheese; it made most excellent cheese; but the farmers soon learned to leave so much whey in the curd that it drove the profit out of the enterprise, and it was abandoned. The following year, 1859, J. N. Strong and Hiram Smith commenced manufacturing cheese in their own dairies, and in 1861 began to take in milk from the neighbors, and the business has steadily increased. In 1858 J. I. Smith shipped the first cheese from the county to Chicago, fifty-eight cheese in barrels, and sold it for eight cents per pound.

"In 1872 a dairy board of trade was started to meet at Sheboygan Falls, with Hiram Smith as president and A. D. DeLand as secretary, which has met every week during the cheese season since 1875; the cheese factories had increased to forty-five, and the shipments to 50,000 boxes, or over 2,000,000 pounds. At the present time, or in 1878, seventy-four (74) factories have been running in the county, and the shipments from Sheboygan in 1878 were over 108,000 boxes, a part of which were made in adjoining counties. This cheese has been sold to Chicago, New York and Liverpool buyers, and cash is always paid at the depot at the time of shipment."

The following was a special dispatch to the Milwaukee *Sentinel*, on Tuesday: "During the year just closed, 108,735 boxes, or 5,827,476 pounds of cheese were shipped from Sheboygan county. This shows an increase over 1877 of 1,627,470 pounds. Nearly 2,000,000 pounds were shipped to Liverpool, the balance to New York, Chicago, Milwaukee and the south. S. H. Conover leads the van, having shipped 2,010,800 pounds. More cheese is made in Sheboygan county than in any other county in the west."

### KENOSHA COUNTY.

From W. C. White, that old pioneer and ever model dairyman, whose epigrammatic advice, "speak to a cow as you would to a lady," has become one of the maxims of dairy literature, I have received the following altogether too meagre account. Mr. White's experience is so rich in practical results, that the little we get out of him makes us anxious for more. He says:

I commenced making cheese in 1860, against the advice of my neighbors, who said I should lose my farm, as good cheese could not be made in Wisconsin. Nevertheless I made cheese; did not try to sell any until it was well cured, and then I took a load to Racine and found hard work to get any one to look at it. All wanted cheese but wanted New York State Cheese, as good cheese could not be made in Wisconsin. At last I got Mr. Geo. Bull to look at and try the cheese, and sold him the lot at eight cents per pound; told him if he could sell it and wanted more, to drop me a line at Kenosha. In a short time I received a line from him for cheese; after that had no trouble in selling all we could make. The next season, quite a number of my neighbors began to see it paid better than grain. Prices have ranged from eight to twenty-two cents; for four or five years, fifteen cents; last three or four, eight to ten cents; the two last seasons ours has averaged nine cents per pound. There are some fifteen or sixteen factories in the county at the present time, also a number of butter factories, among which are R. S. Houston's, A. S. Burke, T. Uldell, Booth Bros., and a number of private dairies where they make first class butter. In Racine county, write to Nettleton & Sears, Caledonia; they have run a factory.

### WAUKESHA COUNTY.

The progress of dairying in this county has not been as marked as in some others. As a rule, it is finely adapted for this pursuit; has an excellent soil for grass and an abundance of the finest water. Indeed, I may say they run to water more than milk.

From data furnished by our worthy president I glean the following:

The first factory built in the county was by Mann and Dousman in 1870; Mann, Stone and Hinckley built the next in 1871. Others have since been built, and the total number at present is twelve. There are besides two fine creameries; those of Geo. Lawrence & Son and A. J. W. Peirce, both of whom received flattering testimonials of the excellence of their product at the late International Fair.

### GREEN COUNTY.

The rise and progress of dairying in this county has been very rapid, and has all, or principally, been accomplished in the last ten years. The round product of the cheese in the county, including Limburg, Swiss and American, was 2,269,867 pounds in 1877. It is estimated that the increase in 1878 will bring the product to 2,500,000 pounds. Fifteen years ago there was not a factory or hardly a respectable dairy in the county. Now there are fifty factories, twelve private choice dairies and two creameries. In the words of Mr. Charles Booth, editor of the Monroe "Sentinel," from whom I have obtained the foregoing facts: "The worn-out wheat fields of Green county are being re-fertilized by the thousands of cows which find pasture where poor crops of grain and big crops of chinch bugs used to flourish, and the whole community saved from distress the past year by this great change in husbandry." Mr. Booth estimates the export of butter to amount to 500,000 pounds. He speaks well of the improvement which has taken place in butter by the system of grading done by cash buyers, thus forcing the maker to a higher standard of excellence.

### FOND DU LAC COUNTY.

The general growth of dairying in this county is hardly in keeping either with the enterprise of representative men in it or the excellent natural facilities it affords for that industry.

The first dairymen's association formed in the state was in this county. This society published the first dairy report ever sent out in Wisconsin, being an account of its annual meeting and proceedings in 1870. Chester Hazen made the first market cheese in the county in 1870, from a dairy of twenty cows. In 1852, Warren Florida, G. D. Curtis, one of the early members of this association, Henry Bush. In 1864, Mr. Hazen commenced making cheese on the factory system from the milk of 100 cows. In 1870, Mr. Hazen commenced shipping his cheese to New York, being the first in the state, we believe, to send car-load lots to the east.

### WINNEBAGO COUNTY.

The first dairy cheese in this county was made by A. Pickett, in 1846. Mr. Pickett has the honor of breaking ground in this particular in two counties, Jefferson and Winnebago. The first factory was built by A. Knapp at Omro, about the year 1863. There are at present sixteen factories, including Limburg and American. Although but few counties in the state present better natural facilities for this pursuit, yet its growth has not, for some reason, been as rapid as many others.

### CALUMET COUNTY.

This county, although among the last to come into line, is making rapid strides. It has a live county organization and evinces a progressive spirit.

From Mr. C. P. Skidmore, the pioneer dairyman of the county, we have obtained the following facts:

The first factory was built in 1873, by Mr. Skidmore. In 1877, F. H. Scott, O. R. Potter, L. Herty, Mr. Ploth each built factories, with also one at Holstein. The year following R. H. McMullen, J. H. Timm, J. J. Rowe, R. A. Lindon and Bench and Reikert built each a factory in different portions of the county. There was a Dairy Board of Trade established last year at Stockbridge.

### COLUMBIA COUNTY.

Dairying in this county found but little foothold until 1872. That year, factories were built at Lodi, and I believe at the same year at Columbus; the first by John Foot and the second by A. Chapman; Fall River factory, by O. G. Prime, following suit in 1873. There are now twelve factories in the county and the make is gradually increasing. The amount of cheese made in 1878 was nearly 900,000 pounds. There are no creameries, but a number of excellent private butter dairies.

### RICHLAND COUNTY.

From Hon. H. L. Eaton, of Lone Rock, we have been kindly presented with the following facts relative to the history of the dairy interest in this county:

On the 1st day of May, 1865, L. G. Thomas, of Herkimer county, Me., opened a cheese factory in this place, with the milk of one hundred cows; he continued the business for several years with varied success at the old place, until the spring of 1878, when he removed his utensils to Wilton, Monroe county, Wis., where he engaged in the same business.

In the spring of 1867, John H. Carswell, of Otsego county, New York, opened a factory in the same vicinity; was successful for a term of years, and was succeeded by his brother, Geo. J. Carswell, who manufactured in 1878, 65,000 pounds of cheese.

In 1869 the writer hereof commenced dairying; in 1870 started a factory; the result has been satisfactory. This season has turned out over 180,000 pounds of cured cheese.

A. & D. Beckwith about 1868 went into the factory system; success has attended them; their product approximates 120,000 pounds the past season.

Edwin Booker started a factory in 1877 in the same valley; his product this season has exceeded 80,000 pounds.

There were in successful operation in this valley (Bear Creek), during the year 1878, four factories within a limit of six miles north and south, and two miles east and west, using the milk of about 1,200 cows, and producing over 450,000 pound of cheese.

These factories have all made full cream cheese; therefore the butter product has been small — not worth mentioning.

The product of 1878 has been all disposed of with the exception of a car-load of November cheese, now awaiting sale in the factories.

I think Mr. Thomas was one of the first to start a factory in Wisconsin.

Dairying has proven to be the *business* in this vicinity, owing to the natural adaptation of the soil and water to produce grass and milk.

I would like to have you visit this section next summer so as to compare it with other portions of the state by observation.

### MISCELLANEOUS.

Scattered through the state in different counties, are representative dairy men who have made the pursuit profitable. Mr. C. H. Wilder, of Evansville, commenced the business in 1860 with a dairy of fifty cows. Mr. Joel Campbell, of the same place, built the first factory in that section in 1865. He was followed, five years later, by Mr. E. Deveraux, John Porter, of Mazomanie; Chas. Beach, of Whitewater; the late Chas. H. Phillips, of Lake Mills, the noted breeder of Jersey cattle; J. J. Smith, of Tomah; R. S. Houston, of Kenosha, are among the noted pioneer and successful butter dairymen of the state. John Cochrane, of Trenton; M. S. Barrett, of Burnett Junction, E. R. Talbot, of Juneau, are among the pioneer dairymen of Dodge county. This county has twenty-two factories, with an annual product of about 1,500,000 pounds of cheese. A. Chipman, of Ann Prairie; John Arions, of North Bristol; E. P. Sherman, of Windsor, and C. C. Pease, of Belleville, were among the first in Dane county to commence the factory system of making cheese. The product in this county, the past year, was over 500,000 pounds.

I have been unable to secure answers to the many inquiries I sent out for information, and this must be my excuse for the meagre character of this history. From the report of the secretary of state I glean items concerning the number of cows in the state. The total number in the state is 389,380, of which Dane county has the largest number, or 20,988; Dodge 19,122, Sheboygan 17,358, Fond du Lac 16,143, Jefferson 15,444, Rock 15,015, Green 14,034, Grant 13,792, Walworth 12,795, Waukesha 11,806, Manitowoc 11,066, Lafayette 10,435, Iowa 10,226, Columbia 11,505. The number of pounds of cheese reported by the secretary of state is 14,351,046. This I know from private data in my possession is about 10,000,000 below the mark. The production for 1878 I estimate at 25,000,000 pounds.

## WISCONSIN DAIRYMEN'S ASSOCIATION.

As lengthy as this subject has grown, I cannot in justice leave it without a few words upon the growth of this association.

As a leading influence in the promotion of the grand results which have been obtained, this association has a right to stand at the head. It first originated in a resolution offered by the writer in the Jefferson County Dairymen's Association, January 26, 1872. By vote of that association, he was directed to issue a call for a meeting of dairymen to be held at the Lindon House, Watertown, February 15, 1872. That call was signed by S. Faville, W. D. Hoard, Q. C. Olin, Chas. Copeland, J. G. Hull, of the Jefferson County Dairymen's Association, and Chester Hazen, president, and H. Strong, secretary of the Fond du Lac County Dairymen's Association. In accordance with that call, about a dozen men met in the Lindon House parlors, and proceeded to organize a state association on the date before mentioned. The distinctive necessity which was urged at that meeting for such organization, was the low condition of the market, the unmarketable character of the principal portion of our cheese, and the lack of action on the part of buyers to handle our goods. Our only market was Chicago, and three car-loads would glut that for a week. We made as a rule a soft cheese, and our only market, as a consequence, was the home demand and the western states and territories.

The price had fallen that season so that good August and September cheese sold for seven and eight cents a pound, and there was a glut in the business fully equal to that of the present year. And this was the state of affairs, gentlemen, when the annual product of the state did not exceed six million pounds. In the east the business was at the height of its prosperity. With a view of correcting this state of things this band of missionaries went forth. They commenced work at the right place; they said that the difficulty with our cheese was, that altogether too few people wanted it. We must have more customers, and to this end must make for a larger demand. There was no uniformity in the style and quality of our goods, and hence no buyers. The agitation of these ideas began to spread, though slowly at first, and soon began to yield " fruits meet for repentance," in the shape of intelligent and energetic action.

At an adjourned meeting of the association held at Watertown March 7th, steps were taken to form the Watertown Board of Trade, an adjunct of the association. Meantime correspondence was had with leading commission firms in New York, and every means taken to arouse the interest of the trade in our goods. This band of workers have succeeded beyond their most sanguine expectations. By our meetings, by our boards of trade, by our dairy fair in 1875, by all that has grown of such organized effort, Wisconsin stands to-day the second dairy state in the Union. Have we not a right to feel an honest pride in the result?

## REPORT OF COMMITTEE ON BUTTER AND CHEESE.

Your committee who were appointed to examine the butter and cheese entered for competition for the different premiums, beg leave to report as follows:

The silver cup, offered by Geo. S. Hart & Howell for best cheese, is awarded to No.................................................. 400
The gold medal, for the best two cheese made in separate months, to No.. 303
The silver medal, for the best cheese made at any time, to No.. ........ 305
The gold medal, for best two tubs of butter made at any time, to No.... 201
The silver medal, for the best and neatest plate of butter made in pound or half pound prints, to No.......................................... 204

Your committee would state that the entries were made by number, and judged by samples brought to them, and the name of exhibitors withheld.

H. W. AYER, Lodi,
A. H. BARBER, Chicago,
W. W. INGRAM, New York,
*Committee.*

The names of the successful competitors are:

400 — Silver cup — Olin & Clinton, Waukesha.
303 — Gold medal on cheese — Olin & Clinton, Waukesha.
305 — Silver medal on cheese — E. S. Stanard, Woodworth.
201 — Gold medal on butter — R. S. Houston, Kenosha.
204 — Silver medal on butter — R. S. Houston, Kenosha.

Olin & Clinton donated the silver cup premium cheese to the association.

TABLE *showing the* ENTRIES OF CHEESE *for the Silver Cup, and the award of the judges on a scale of* 40.

| NAME. | No. of package. | Flavor. | Quality. | Texture. | Color. | Total. | Grand Total. |
|---|---|---|---|---|---|---|---|
| Olin & Clinton | 400 | 7 | 6 | 5 | 2 | 20 | 55 |
| | | 6 | 6 | 3 | 2 | 17 | |
| | | 6 | 6 | 4 | 2 | 18 | |
| M. N. Seward | 401 | 6 | 6 | 4 | 1 | 17 | 49 |
| | | 5 | 6 | 4 | 1 | 16 | |
| | | 6 | 6 | 3 | 1 | 16 | |
| C. P. Colt | 402 | 6 | 6 | 4 | 2 | 18 | 49 |
| | | 5 | 6 | 3 | 2 | 16 | |
| | | 4 | 5 | 4 | 2 | 15 | |
| A. H. Wheaton | 403 | 3 | 3 | 2 | 1 | 9 | 31 |
| | | 4 | 4 | 3 | 1 | 12 | |
| | | 2 | 3 | 5 | 0 | 10 | |
| J. Chase | 404 | 3 | 4 | 3 | 2 | 12 | 35 |
| | | 4 | 4 | 2 | 1 | 11 | |
| | | 4 | 4 | 2 | 2 | 12 | |
| E. S. Stanard | 405 | 5 | 5 | 3 | 2 | 15 | 45 |
| | | 5 | 6 | 4 | 1 | 16 | |
| | | 5 | 5 | 3 | 1 | 14 | |

NOTE. — The judges adopted the following: Flavor, 8; quality, 8; texture, 5; color, 3; perfection, 24.

TABLE *showing the* ENTRIES OF CHEESE *for the Gold Medal, and the award of the judges.*

| NAME. | No. of package. | Flavor. | Quality. | Texture. | Color. | Total. | Grand Total. |
|---|---|---|---|---|---|---|---|
| J. Chase | 300 | 3 | 4 | 2 | 1 | 10 | 27 |
| | | 3 | 3 | 1 | 1 | 8 | |
| | | 3 | 3 | 2 | 1 | 9 | |
| C. Vedder | 302 | 4 | 5 | 3 | 2 | 14 | 47 |
| | | 3 | 4 | 3 | 2 | 12 | |
| | | 4 | 4 | 2 | 1 | 11 | |
| Olin & Clinton | 303 | 7 | 7 | 4 | 3 | 21 | 61 |
| | | 7 | 7 | 4 | 3 | 21 | |
| | | 7 | 6 | 4 | 2 | 19 | |
| M. N. Seward | 304 | 5 | 5 | 3 | 2 | 15 | 48 |
| | | 6 | 6 | 3 | 2 | 17 | |
| | | 6 | 5 | 3 | 2 | 16 | |
| E. S. Stanard | 305 | 6 | 5 | 3 | 2 | 16 | 44 |
| | | 5 | 4 | 3 | 2 | 14 | |
| | | 6 | 4 | 2 | 2 | 14 | |

TABLE *showing the* ENTRIES OF CHEESE *for the Silver Medal, and the award of the judges.*

| NAME. | No. of package. | Flavor. | Quality. | Texture. | Color. | Total. | Grand Total. |
|---|---|---|---|---|---|---|---|
| C. Vedder | 302 | 4 | 4 | 2 | 1 | 11 | 30 |
| | | 4 | 4 | 2 | 1 | 11 | |
| | | 3 | 3 | 1 | 1 | 8 | |
| E. S. Stanard | 305 | 5 | 5 | 3 | 2 | 15 | 43 |
| | | 4 | 5 | 3 | 2 | 14 | |
| | | 3 | 5 | 2 | 2 | 14 | |

TABLE *showing the* ENTRIES OF BUTTER *for the Gold Medal, and the award of the judges on a scale of* 40.

| NAMES. | No. of package. | Flavor. | Salt. | Grain. | Color. | Total. | Grand Total. |
|---|---|---|---|---|---|---|---|
| A. S. Barber.................. | 200 | 7 | 7 | 6 | 6 | 26 | 88 |
| | | 9 | 9 | 8 | 8 | 34 | |
| | | 6 | 8 | 7 | 7 | 28 | |
| R. S. Houston........ ........ | 201 | 8 | 10 | 10 | 10 | 38 | 113 |
| | | 8 | 10 | 10 | 10 | 38 | |
| | | 8 | 10 | 10 | 9 | 37 | |
| Booth Bros.................... | 202 | 7 | 7 | 6 | 7 | 27 | 86 |
| | | 8 | 8 | 6 | 9 | 31 | |
| | | 5 | 7 | 7 | 9 | 28 | |
| F. C. Curtis.. ................. | 207 | 6 | 6 | 5 | 5 | 22 | 73 |
| | | 7 | 8 | 7 | 6 | 28 | |
| | | 6 | 6 | 5 | 6 | 23 | |
| L. B. Root.................... | 208 | 8 | 7 | 7 | 6 | 28 | 83 |
| | | 8 | 8 | 7 | 6 | 29 | |
| | | 8 | 6 | 6 | 6 | 26 | |

TABLE *showing the* ENTRIES OF BUTTER *for the Silver Medal, and the award of the judges.*

| NAME. | No. of package. | Flavor. | Salt. | Grain. | Color. | Total. | Grand Total. |
|---|---|---|---|---|---|---|---|
| W. Lefever . ................. | 203 | 5 | 7 | 6 | 10 | 28 | 84 |
| | | 5 | 8 | 7 | 10 | 30 | |
| | | 6 | 6 | 6 | 8 | 26 | |
| R. S. Houston ....... ........ | 204 | 8 | 9 | 10 | 10 | 37 | 97 |
| | | 7 | 8 | 7 | 9 | 31 | |
| | | 7 | 6 | 8 | 8 | 29 | |
| A. S. Barber .................. | 205 | 5 | 5 | 4 | 3 | 17 | 53 |
| | | 5 | 5 | 5 | 3 | 18 | |
| | | 5 | 5 | 5 | 3 | 18 | |
| A. S. Barber .................. | 206 | 5 | 5 | 4 | 3 | 17 | 53 |
| | | 5 | 5 | 5 | 3 | 18 | |
| | | 5 | 5 | 5 | 3 | 18 | |
| Mrs. J. Walker ................ | 209 | 2 | 6 | 5 | 4 | 17 | 61 |
| | | 5 | 7 | 5 | 5 | 22 | |
| | | 6 | 6 | 5 | 5 | 22 | |

The butter and cheese were in charge of Maj. J. B. Vousburgh, of Genoa Junction.

# REPORT ON DAIRY GOODS AND MANUFACTURES.

Your committee on dairy goods and manufactures beg leave to submit the following report:

The Kenosha Milk Pan Company exhibit Hides' double channel milk pan, which is endorsed by prominent and well known dairymen. It is a desirable pan for shallow setting of milk.

C. C. Fairlamb, Arena, Wisconsin, exhibits the Fairlamb Milk Can. These cans are 19 inches high, 12 in diameter at the top, and 12½ at the bottom, provided with air-tube in the centre for rapid cooling of the milk. The covers are of tin, and have a rubber band placed in the periphery of the cover, making the cans air-tight. The cans are provided with a glass gauge, inserted inside of the can, for measuring depth. The cream is reckoned, by the company, by the inch, as indicated by this glass gauge. The cans are so constructed as to preserve the milk in perfect condition for a remarkable length of time. The circulation through the centre of the body of milk prevents centre taint. The covers prevents any impurities from the air from coming in contact with the milk, and thus prevent early souring. The plan consists in gathering the cream by its agents from the dairies, and accounting to each dairy for the number of inches taken. The cream gatherers farthest off bring their cans to those half the distance, who deliver at the factory.

This is a *new departure* in the system of butter making, and will be watched with interest, as it seems to be the most feasible plan of reaching the large butter districts and making the butter uniform.

The Cooley, or submerged system of setting milk was represented by the manufacturer, John Boyd, Nos. 175 and 177 Lake street, Chicago, who exhibited the creamer in actual operation. It commends itself to us as a great saver of labor, simple, effectual, and productive of the most uniform results; it insures the milk perfect immunity from dust, flies, or atmospheric influences of any kind.

Cornish & Curtis, of Fort Atkinson, exhibit a rectangular churn, which is too well and favorably known to need any commendation from us.

They also exhibit the square box churn, which is the favorite of many.

The lever butter worker exhibited by this firm is well and substantially made, and should find a place in every dairy room.

The grain of the butter will not be injured if this worker is used.

Leonard Lakin, Fort Atkinson, exhibits the Chatauqua Butter Package. This package is made of tin, and covered with thick, heavy paper board. They are light, neat, and every way desirable. The fifty pound package costing no more than the ordinary tub. A neat package often sells the poor butter it contains, and we hope to see more of this kind of package for *good butter.*

L. Gilbert, Kenosha, exhibits samples of his cheese boxes, which seem to be substantial and well made.

E. E. Sheldon, Fort Atkinson, exhibits samples of his Badger State Butter and Cheese Color. He claims that it will give a perfect and permanent color, and is chemically superior to any other made. It has the appearance of being all that is claimed for it.

R. S. White & Co., Fort Atkinson, exhibit samples of their natural butter and cheese color, which for purity and strength of color, producing a rich dandelion yellow, he claims is not excelled or equalled by any preparation east or west. It is certainly worthy of trial.

Your committee, in closing this report, would say that no class of people are more favored by the inventive genius of the country than the dairymen. Every one who manufactures an article for the dairy should exhibit a sample at our annual meetings, that the dairyman may know where to buy the best of everything, and the manufacturer know where to sell.

JOHN PORTER,
J. A. SMITH,
O. Z. OLIN,
*Committee.*

President Dousman — The Cheddar and Stilton cheese presented by Messrs. Thurbur, of New York, will now be distributed, and it is hoped that the day is not far distant when *every* cheese maker in Wisconsin will be able to make just as fine a cheese.

We will now adjourn to the Grant House, where we are to have a dairy banquet and sociable. Let every one attend.

### *Evening Session.*

The convention closed with a grand banquet, gotten up by N. J. Bliss & Bro., of the Grant House.

Short speeches of a hearty and cordial nature were made in response to toasts, by Dr. Farr, Prof. Arnold, Hiram Smith, W. D. Hoard, Chester Hazen, H. F. Dousman, A. D. Cornwall, Israel Boies, I. J. Clapp, Geo. C. Lawrence and others.

The large company then adjourned to the parlors, where stories were told of early life in dairying, and songs were sung.

The Kenosha band did much to enliven the evening.

Thus closed the seventh annual meeting of the Wisconsin Dairymen's Association, one of the most instructive and the *best* financially ever held.

# APPENDIX.

Premiums offered on butter and cheese at the state fair, to be held at Madison, September 8–13, 1879:

## CREAMERY BUTTER.

| | |
|---|---|
| Each exhibit, not less than 100 lbs., made at any time. and awarded 40 points or over in a scale of 50 points, or perfection, shall be designated "Gilt Edge," and draw a pro rata share of | $100 00* |

## DAIRY BUTTER.

| | |
|---|---|
| Best roll — print or package, not less than 20 lbs., made at any time, first premium | $10 00 |
| Second best | 5 00 |

## SWEEPSTAKES.

| | |
|---|---|
| Best exhibit, not less than 100 lbs., made at any time, in any factory or dairy | $25 00 |

## SPECIAL PREMIUMS.

Messrs. H. K. & F. B. Thurbur & Co., New York city, offer the following prizes:

For the best packages of butter of not less than 50 pounds, salted with Higgins' Eureka salt, a gold medal.

For the second best, a silver medal.

For the third best, a bronze medal.

Cornish & Curtis, Fort Atkinson, Wis., offer a Rectangular churn, worth $12, for the best tub of butter churned in the Rectangular churn, of not less than 20 pounds.

For the second best, a Common-Sense Butter Worker, worth $5.

## FACTORY CHEESE.

| | |
|---|---|
| Each exhibit of three cheese, or not less than 150 pounds, made at any time, and awarded 40 points or over in a scale of 50 points or perfection, shall be designated "Grade No. 1," and draw a *pro rata* of. | $120 00 |

## FARM DAIRY CHEESE.

| | |
|---|---|
| Best exhibit, of not less than 100 pounds, made at any time | $10 00 |
| Second best | 5 00 |

**Note.** — All butter to be judged by a scale of points as follows: Flavor, 20; grain, 15, salting, 5; color, 5; style of package, 5; total, 50.

## SWEEPSTAKES.

| | |
|---|---|
| Best cheese-factory or dairy, not less than 150 pounds, made at any time * | $25 00 |

Messrs. H. K. & F. B. Thurbur offer the following:

## SPECIAL PREMIUMS.

| | |
|---|---|
| For the best cheese, salted with Higgins' Eureka salt | A gold medal. |
| For the second best | A silver medal. |
| For the third best | A bronze medal. |

No one exhibitor is entitled to compete for both factory and dairy premiums for butter or cheese, except for sweepstakes.

## PREMIUMS AWARDED WISCONSIN DAIRYMEN AT THE INTERNATIONAL DAIRY FAIR.

*Held in December*, 1878, *at the American Institute, New York City.*

### CLASS C.—CREAMERY BUTTER MADE IN WISCONSIN.

| | |
|---|---|
| 1st prize, George Laurence & Sons, Waukesha | $50 00 |
| 2d prize, N. W. Morley, Baraboo | 25 00 |
| 3d prize, A. J. W. Peirce, Milwaukee | Diploma |

### CLASS D.—DAIRY BUTTER MADE IN WISCONSIN.

| | |
|---|---|
| 1st prize, R. S. Houston, Kenosha | $50 00 |
| 2d prize, F. C. Curtis, Rocky Run | 25 00 |

### CLASS H.—CHEESE MADE IN WISCONSIN.

| | |
|---|---|
| 1st prize, Chester Hazen, Ladoga | $50 00 |
| 2d prize, M. N. Seward, Harvey | 25 00 |
| 3d prize, Job Mills, Lodi | Diploma |

### CLASS L.—SPECIAL PREMIUMS.

#### CHEESE.

For the best lot of cheese, not less than 50 lbs., salted with Ashton's Factory Filled Salt, made in Ohio, Michigan, Missouri, Indiana, Illinois, Iowa, Kansas, Nebraska or Minnesota—prize of $125, in gold. Awarded Seward & Skinner, Aztalan.

#### BUTTER.

For the best lot of butter salted with Higgins' Eureka Salt, to any farmer creamery or dairyman in the United States, a sweepstakes prize of $250. Awarded to Hiram Smith, Sheboygan Falls.

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* NOTE.—Scale of points for judging cheese: flavor, 15; quality, 15; texture, 10; style, 6; color, 4; total, 50.

For the best firkin of dairy or creamery butter made in America, a prize valued at $100, offered by T. P. McElrath, New York city. Awarded to George Lawrence & Sons, Waukesha.

# PREMIUMS AWARDED AT THE WISCONSIN STATE FAIR,

SEPTEMBER, 1878.

## BUTTER AND CHEESE.

### BUTTER, FARM MADE — IN JUNE.

1st premium, C. P. Goodrich, Christiana.
2d premium, C. Southerland, Syene.
3d premium, George F. Brown, Blooming Grove.

### BUTTER, FARM-MADE — ANY TIME.

1st premium, C. P. Goodrich, Christiana.
2d premium, J. B. Stowe, Oregon.
3d premium, Hiram Baker, Stoughton.

### BUTTER, CREAMERY-MADE, IN JUNE.

2d premium, C. P. Goodrich, Christiana.

### BUTTER, CREAMERY-MADE, ANY TIME.

1st premium, C. P. Goodrich, Christiana.
2d premium, Ed. Wheeling, Door Creek.
3d premium, A. Chipman, Sun Prairie.

### TWO CHEESES MADE IN JUNE.

1st premium, Charles Gibson, Lind.
2d premium, A. C. Morton, Ashton.
3d premium, C. Hazen, Ladoga.

### TWO CHEESES MADE IN AUGUST.

1st premium, A. F. Jones, Lake Mills.
2d premium, C. Hazen, Ladoga.
3d premium, Charles Gibson, Lind.

## ESTIMATED PRODUCTION OF BUTTER AND CHEESE.

The value of land and cows in the United States employed in furnishing milk, butter and cheese, is not less than $1,300,000,000, or the sum of nearly half the national debt at its highest point. Over three thousand factories are engaged in the manufacture of these articles.

The production of cheese is estimated at 350,000,000 lbs. per annum, and of butter about 1,500,000,000; of the former, 130,000,000 lbs. will be exported this year, and about 25,000,000 of the latter. The value of the two is about $350,000,000, or $50,000,000 more than the wheat crop of the country; three times more than the oats crop; four times more than the potato crop; one-seventh more than the hay crop; one-third more than the the cotton crop, and but one-fifth less than the corn crop. The number of cows in the United States is over 13,000,000, which is six times the number in Great Britain, over twice the number in France, two and a half times more than in Prussia, and more than in the countries of England, Ireland, Scotland, Wales, Denmark, Norway, Sweden, Russia, Finland, Austria, Hungary and Switzerland combined; although these countries together contain four times the population of the United States. The proportion of cows to the inhabitants here is twenty-three to each one hundred persons.

The productions of cheese and butter increased thirty-three per cent. last year, and the exports have been in like proportion.

The cheese and butter exported this year have paid freight to the amount of over $1,000,000 to the ocean commerce, or a sum almost sufficient to support a line of weekly steamers. These articles pay to the railroad companies over $5,000,000 annually for transportation, and the article of milk pays nearly as much more. Loaded on railway cars, ten tons to each car, the butter and cheese produced in the United States in one year would fill 22,000 cars, and make a compact line 135 miles long.

It is estimated that Great Britain, with a population of 32,000,000, consumes about 260,000,000 pounds of cheese annually, while the United States, with 50,000,000 inhabitants, consumes about 200,000,000 pounds annually. It is claimed that when only a good quality is put into the home market, Americans will become as great cheese eaters as Englishmen.

## CHEESE ON HAND JANUARY 1.

The following statement will show the increase in dairy products during 1878, and the danger of a surplus of old cheese at the beginning of cheese making in spring. The amount of stock on hand, January 1st, for two years, is as follows:

| | 1878. | 1879. |
|---|---|---|
| New York city, boxes | 218,032 | 396,467 |
| Philadelphia, boxes | 33,000 | 40,000 |
| Boston, boxes | 22,000 | 25,000 |
| Liverpool, boxes | 89,000 | 180,000 |
| London, boxes | 45,000 | 70,000 |
| Total | 407,032 | 711,467 |

This would require a sale of 30,500 boxes each week until the 13t of April to clear out the stock. The sales for the four previous years were as follows: 1878, 308,355; 1877, 190,311; 1876, 228,604; 1875, 145,559 boxes. The following are the quotations on January 1st: 1878, for fine September make, 13 to 13½c; 1877, 14½ to 15c; 1876, 13c; 1875, 15¾ to 16c. And as this year it is only worth 9 to 9½c, it will perhaps cause a greater sale. In times of depression in price, quality is of the highest importance.—*National Live Stock Journal.*

## WHO BUYS OUR BUTTER AND CHEESE.

**From the Boston Cultivator.**

Few of our dairymen realize the immense strides in the increased production of butter and cheese in this country, or the enormous totals reached by the export trade in these staples. Take a single week, say ending October 9, and New York alone exported 78,725 packages of cheese, weighing 2,439,050 pounds, as against an export during the corresponding week in 1877 of 52,731 packages, weighing 1,533,497 pounds. Since May 1st, 2,349,148 packages of cheese have been exported from New York, representing 95,542,100 pounds, as against the shipment in 1877 of 1,652,026 packages, weighing 84,829,537 pounds. It may be interesting to note who compose our foreign customers for butter and cheese. Taking the list of exports from New York for the week ending October 16, we find the following: Thursday, October 10, there was shipped to Demerara, in British Guiana, 6,150 pounds cheese; to Halifax, 4,163 pounds butter; to Hamburg, 14,163 pounds butter; to Liverpool, 28,323 of butter, 469,389 of cheese, and to London, 618,195 of cheese. Friday, October 11, shipments were to Bermuda, 9,612 pounds of butter, 1,978 of cheese; to Glasgow, 17,667 of butter, 81,516 of cheese; to Gibraltar, 600 butter, 260 cheese; to Kingston, Jamaica, 5,813 of butter, 2,065 cheese; to London, 103,972 cheese; to Port Spain, 2,147 of cheese; to Port-au-Prince, 1,700 of butter and 537 cheese. Saturday, October 12, recorded shipments were to Aspinwall, Central America, 4,768 pounds of butter, 413 of cheese; to Bremen, Germany, 51,956 pounds of butter, 32,230 cheese; to Barbadoes, 3,000 pounds of butter; to Cape Hayti, 1,000 pounds butter, 286 cheese; to Gibara, in Cuba, 1,350 of butter; to Hamburg, 17,500 of butter, 4,300 of cheese; to Liverpool, 13,382 butter, 730,056 cheese. Monday, October 14, there was shipped to various West India Islands, 13,560 pounds of butter, 4,824 of cheese; to Glasgow, 46,217 butter and 199,841 cheese. Tuesday, October 15, shipments to several of the West India Islands aggregated 14,178 pounds of butter and 559 of cheese. Wednesday, October 16, shippers to London took 465,985 pounds cheese; to Liverpool, 17,095 of butter and 67,500 of cheese; to West Indies, 1,500 pounds of butter and 334 pounds of cheese. The shipments for that week alone aggregated 267,797 pounds of butter and 2,792,462 pounds of cheese. Many other countries to which we export dairy products' as Brazil and Chili, do not appear in the week's shipments quoted above, but enough is quoted to show the numerous and wide-spread patrons of the American dairy. A careful attention to the requirements of different markets, and wise legislation concerning foreign commerce, will soon give the world as a market for the productions of the American farmer.

## BUTTER IN THE NORTHWEST.

**From the Daily Commercial Bulletin, Chicago.**

The butter season opened very auspiciously for an abundant make. It was several weeks in advance of that last year, and, with splendid pasturage, the outlook for an extensive make of butter was never better. During the early part of the season the manufacture was unusually large, which the receipts at Chicago affirm, the arrivals during the early part of June running several days above 300,000 pounds, and some days reached 400,000 pounds. The facilities were ample, and farmers and dairymen appeared to give all their attention to the manufacture of butter, so excessive were the receipts, not alone here but at all prominent points. But the remarkable shrinkage in prices as compared with former years, wrought a material change in the manufacture of butter. Prices fell to an unremuneratively low point, under the excessive arrivals, while buyers, taking into consideration the marked decline suffered in breadstuffs all over the world, were backward about purchasing, and it seemed as though prices would never touch a low enough point to induce them to take hold. The market became glutted, and dealers, especially manufacturers, became demoralized over the situation. Farmers became dissatisfied at the low prices they were paid for their butter, and sold a greater quantity of their milk to cheese factories, the production of which became very great, thus curtailing the manufacture of butter. Farmers have, from all appearances, got over the idea of making butter to hold, evidently having had sad experience in this line, and they took advantage in this way of disposing of their surplus milk. A considerable quantity of milk was also fed to the smaller live stock, where it could be turned to advantage. Thus, the early manufacture of butter, although very large, was nevertheless like our grain crops, considerably over-estimated. Then followed the excessively hot weather in July, which again greatly checked the make of butter. The flow of milk was naturally less, and, taken all in all, the make of butter was much smaller than anticipated, or much less than if the weather had continued reasonably cool. Besides the material falling off in the make, the quality, during the hot weather, was brought below the usual average, thus creating a still greater scarcity of the finer grades.

The average quality of the butter made this year, taken all in all, is probably poorer than last year. Out of the replies from 91 points, we find that 34 report the quality poorer than last year, 40 report the quality about the same and 17 better. The unusually hot weather the past season is no doubt accountable for the great falling off in quality. However, in this respect it might be said that there has been a strong effort made among Western dealers to improve the quality of the butter manufactured, their aim being to attain a standard reputation not to be excelled by any other section or country. It is needless to dwell upon this subject; suffice it to say that already our Western productions have became formidable rivals to the Eastern productions, and many marks sell on equal footing with the older established Eastern brands. The creamery system is rapidly gaining favor, and new factories are being established all over the West.

### MOVEMENT OF BUTTER AT CHICAGO.

The following table exhibits the receipts and shipments of butter at Chicago for 13 years, and to date for the year 1878, according to reports given by the Secretary of the Board of Trade:

| Years. | *Receipts.* lbs. | *Shipm'nts.* lbs. |
|---|---|---|
| 1865 | 7,492,628 | 5,206,865 |
| 1866 | 9,126,825 | 8,503,321 |
| 1867 | 3,816,638 | 2,926,239 |
| 1868 | 5,503,630 | 3,972,021 |
| 1869 | 10,224,803 | 5,898,391 |
| 1870 | 11,682,348 | 6,493,143 |
| 1871 | 13,231,452 | 11,049,367 |
| 1872 | 14,574,777 | 11,497,537 |
| 1873 | 22,283,765 | 12,851,303 |
| 1874 | 28,743,606 | 16,020,190 |
| 1875 | 21,868,991 | 19,249,081 |
| 1876 | 33,941,573 | 34,140,609 |
| 1877 | 42,236,366 | 36,514,983 |
| 1878 Aug.24 | 31,714,318 | 29,263,586 |

For the regular butter season — May, June, July and to August 24, 1878, inclusive, the receipts have aggregated 21,414,520 pounds, against 16,493,031 pounds for the same time 1877 — an increase of 4,921,489 pounds. The shipments for the same period — May to August 24th inclusive, aggregated 19,821,660 pounds, against 14,495,864 pounds for the corresponding time in 1877 — an increase of 5,325,796 pounds.

## RECEIPTS AND SHIPMENTS OF BUTTER AND CHEESE IN MILWAUKEE.

*For the year* 1878, *as reported by A. J. W. Pierce.*

| | |
|---|---|
| Receipts of butter | 6,111,286 lbs. |
| Shipments of butter | 5,739,041 lbs. |
| Receipts of cheese | 13,256,808 lbs. |
| Shipments of cheese | 12,865,110 lbs. |

## BUTTER AND CHEESE MADE IN WISCONSIN.

*During the year* 1870, *as taken from the census report, also the amount made in* 1876, 1877 *and* 1878.

| | 1870. | 1876. | 1877. | 1878. |
|---|---|---|---|---|
| | *lbs.* | *lbs.* | *lbs.* | *lbs.* |
| Butter | 22,473,036 | 50,130,000 | 62,662,500 | 2,213,187,500 |
| Cheese | 1,591,798 | 17,000,000 | 21,250,000 | 708,333,300 |

From the best information to be obtained from prominent dairymen in all parts of the state, the estimate of 1878 is made.

The assessment of 1877 show that there was 389,380 cows in the state at that time.

## EXPORTS OF BUTTER AND CHEESE,

*As obtained from the* HON. EDWARD YOUNG, *Chief of the Bureau of Statistics, Washington.*

| | QUANTITIES. | | VALUES. | |
|---|---|---|---|---|
| | Three months ended December 31 — | | Three months ended December 31 — | |
| | 1877. | 1876. | 1877. | 1876. |
| Butter .......lbs. | 3,789,096 | 4,401,357 | $723,794 | $1,003,473 |
| Cheese ......lbs. | 21,763,929 | 15,997,121 | 2,743,373 | 2,076,998 |
| | Three months ended March 31 — | | Three months ended March 31 — | |
| | 1878. | 1877. | 1878. | 1877. |
| Butter ....... lbs. | 2,792,047 | 4,979,541 | $503,106 | $1,085,460 |
| Cheese ......lbs. | 14,605,266 | 9,474,615 | 1,844,269 | 1,320,924 |
| | Three months ended June 30 — | | Three months ended June 30 — | |
| | 1878. | 1877. | 1878. | 1877. |
| Butter .......lbs. | 5,549,728 | 4,547,411 | $822,428 | $822,447 |
| Cheese ......lbs. | 37,260,102 | 31,174,371 | 3,753,128 | 3,717,988 |
| | Month ended December 31 — | | Month ended December 31 — | |
| | 1878. | 1877. | 1878. | 1877. |
| Butter ....... lbs. | 2,271,832 | 743,551 | $351,415 | $140,455 |
| Cheese ... ..lbs. | 6,824,437 | 7,924,132 | 667,002 | 1,007,992 |
| | Twelve months ended December 31 — | | Twelve months ended December 31 — | |
| | 1878. | 1877. | 1878. | 1877. |
| Butter....... lbs. | 26,656,198 | 23,014,268 | $3,895,166 | $4,512,573 |
| Cheese ......lbs. | 139,249,276 | 112,567,354 | 13,761,465 | 13,545,044 |

## DAIRY STATISTICS.

*Of Cheese Factories, Creameries and Private Dairies in the State as far as could be ascertained, for the year ending September* 31, 1878.

| COUNTIES AND NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. Cows to each factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory Make. | Cheese, Private Dairy. | Cheese, Limberger | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| BROWN. | | | | | | | | |
| Jas. Bitehie Lawrence | West Depere | 60,000 | | | | | | 200 |
| A. Vander Heiden & Co. | Wrightstown | 30,000 | | | | | | 125 |
| D. Benecke | Fontenoy | 49,904 | | | | | | 175 |
| BUFFALO. | | | | | | | | |
| William Fisher | Mondovia | 35,000 | | | | | | 262 |
| T. W. Bailey | Gilmanton | | | | | | | |
| A. Mosher | Gilmanton | | | | | | | |
| CALUMET. | | | | | | | | |
| C. P. Skidmore | Stockbridge | 30,200 | | | | | | 80 |
| M. S. W. Scott | Brant | 10,000 | | | | | | |
| O. R. Potter | Potter's Mills | 9,000 | | | | | | |
| Wirtz Cheese Company | Hilbert | 9,000 | | | | | | |
| Platt Cheese Company | Hilbert | 17,800 | | | | | | |
| CLARK. | | | | | | | | |
| G. & J. Heuntzlcher Factory | Greenwood | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| COLUMBIA. | | | | | | | |
| Arlington Cheese Assciation | Dixon | 98,000 | | | | 100 | 300 |
| Wyocena Cheese Association | Wyocena | 21,500 | | | | | 80 |
| Lodi Cheese Association | Lodi | 132,800 | | | | | 400 |
| West Point Cheese Association | West Point | 57,904 | | | | | 175 |
| Chas. Baker Cheese Association | Portage | 22,000 | | | | 1,500 | 100 |
| O. B. Prime & Co | Fall River | 166,000 | | | | | 650 |
| Caledonia Cheese Company | Portage | 36,077 | | | | | 130 |
| A. Chapman | Columbus | 60,000 | | | | | 350 |
| Poynette Cheese Factory | Poynette | 50,000 | | | | | 165 |
| H. M. Chapman's Creamery* | | 30,000 | | | | 36,000 | 65 |
| J. Whiting | Port Hope | 7,000 | | | | | 40 |
| Randolph Cheese Factory | Randolph | | | | | | |
| DANE. | | | | | | | |
| C. C. Pease | Belleville | | | | | | |
| Wm. Fischer | Paoli | 30,000 | | | | | 150 |
| Humphrey & Sherman | Mazomanie | | | | | | |
| Black Earth Cheese Factory | Black Earth | 59,983 | | | | 500 | 250 |
| Dane Cheese Factory | Dane | 94,000 | | | | | 250 |
| A. S. Noyes' Cheese Factory | Waunakee | | | | | | |
| W. J. Donald Cheese Factory | Mt. Vernon | | | | | | |
| Brooklyn Cheese Factory | Brooklyn | | | | | | |
| John Fasher Cheese Factory | Mt. Vernon | | | 48,950 | | | 143 |
| John Ole & Co. Cheese Factory | Primrose | | | 52,500 | | | 170 |
| John Arian's Cheese Factory | North Bristol | | | | | | |
| A. Chipman's Cheese Factory | Sun Prairie | | | | | | |
| Sherman Bros. Cheese Factory | Windsor | 35,398 | | | | | 150 |
| Olin, Crossfield & Co | Cambridge | | | | | | |
| Kittle, Torguson & Co | Utica | 47,651 | | | | 459,093 | 200 |
| C. M. Prentice | Dane | 93,843 | | | | | 225 |

* Skim-cheese.

## *Dairy Statistics — Factories, Creameries and Private Dairies* — continued.

| COUNTIES AND NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. of Cows to each Factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory, Make. | Cheese, Private, Dairy. | Cheese, Limberger | Cheese, Swiss. | Butter, Creamery. | Butter, Private, Dairy. | |
| DODGE. | | | | | | | | |
| Stapleton Cheese Co | Fox Lake | 18,000 | | | | | | |
| R. F. Ellis. | Beaver Dam | 25,000 | | | | | | 150 |
| J. B. Cochrane Cheese Co | Beaver Dam | 100,000 | | | | | | |
| F. S. Jacobs. | Atwater | 65,000 | | | | | | 275 |
| Wm. B. McDonald | Danville | | | | | | | 300 |
| G. R. Talbot | Juneau | 78,979 | | | | | | 340 |
| G. R. Talbot | Rolling Prairie | 38,874 | | | | | | 140 |
| G. R. Talbot | Emmett | 38,221 | | | | | | 221 |
| John Hoffman | Hustisford | | | | | | | |
| B. Boss | Hustisford | | | 29,000 | | | | 150 |
| H. Brue | Hustisford | | | | | | | |
| Mr. von Grünigen | Hustisford | | | | | | | |
| M. E. von Grünigen | Hustisford | | | 90,000 | | | | 300 |
| A. Graniger | Hustisford | | | | | | | |
| J. Graniger | Hustisford | | | | | | | |
| C. Wellow (3 factories) | Hustisford | | | | | | | |
| J. Seelgldurey | Hustisford | | | | | | | |
| Mr. Chrunkny | Hustisford | | | | | | | |
| S. Boss | Watertown | | | | | | | |
| Jacob Joss | Woodland | | | | 70,000 | 600 | | 210 |
| J. Ealing | Woodland | | | | | | | |
| M. S. Barrett's Factory | Burnett | | | | | | | |
| S. Hammond | Lowell | 12,000 | | | | | | 150 |
| R. D. Calkins | Randolph | 30,000 | | | | | | 150 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Lebanon Cheese Co | Lebanon | 48,851 | | | | | 250 |
| Lake Emily Cheese Co | Fox Lake | 41,000 | | | | | 150 |
| FOND DU LAC. | | | | | | | |
| C. Hazen | Ladoga | 145,631 | | | | | 500 |
| C. Hazen, Brandon Factory | Ladoga | 38,000 | | | | 2,000 | 180 |
| E. S. Jenkins' Factory | Rosendale | 58,000 | | | | | 250 |
| E. Peebles | Peebles | 100,000 | | | | | 250 |
| D. D. Treleven | Byron | | | | | | |
| Wm. Berry | Peebles | | | | | | |
| Fayette Bude | Oakfield | | | | | | |
| M. Wookey | Oakfield | 120,000 | | | | | 450 |
| Willis Lang | Waupun | 56,000 | | | | | |
| John Howard | Waupun | 21,000 | | | 1,600 | | 80 |
| H. C. Williams | Waupun | | | | | | |
| Bradley's Cheese Co | Waupun | 45,000 | | | | | 150 |
| M. R. Stapleton | Waupun | 20,000 | | | | | 50 |
| R. M. Stevens | Ripon | | | | | | 75 |
| J. H. Downing | Waupun | 55,000 | | | | | 225 |
| J. Cronks | Waupun | 158,179 | | | | | 500 |
| B. Bennett | Lamertine | | | | | | |
| O. G. Parker | North Byron | | | | | | |
| Fountain City, Wm. Berg | Peebles | | | | | | |
| Ira Brown | New Cassel | | | | | | |
| Bristol & Orvis | Oakfield | 68,000 | | | | | 250 |
| L. F. Beedee | Oakfield | | | | | | |
| Simon Arthur | Fond du Lac | | | | | | |
| H. G. Parker | Fond du Lac | 71,500 | | | | | 275 |
| J. A. Chitterling | Fond du Lac | 34,897 | | | | | |
| Ira Brown | Campbellsport | 58,792 | | | | | 255 |
| GRANT. | | | | | | | |
| A. E. Morse | Bloomington | | | | | | |
| Delos Abrahams | Bloomington | 10,980 | | | | | 25 |
| Morse & Welch Factory | Bloomington | 50,000 | | | | | 160 |

*Dairy Statistics — Factories, Creameries and Private Dairies* — continued.

| COUNTIES AND NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. of Cows to each Factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory Make. | Cheese, Private Dairy. | Cheese, Limberger | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| GREEN. | | | | | | | | |
| C. Hazen | Ladoga | 10,000 | | | | | | |
| Melvin, Blair & Co. | Brooklyn | 120,000 | | | | | | 350 |
| Hoesley & Lenhar (2 fac.) | New Glarus | 361,423 | | | | | | 1,285 |
| G. O. Stearns | Monroe | | | | | | | |
| E. W. Cheesbro | Monroe | | | | | | | |
| Postville Factory | Stewart | 151,760 | | | | | | 389 |
| W. C. Gorham | Monroe | | | | | | | |
| W. S. Wescott | Monroe | | | | | | | |
| Dayton Factory | Dayton | | | | | | | |
| Chris Karlan | Juda and Nevada | | | | | | | |
| Jack Karlan (4 fac.) | Farmers' Grove | | | | | | | |
| Nic Gerber (7 fac.) | New Glarus | | | | | | | |
| John Boss (2 fac.) | Monroe | | | | | | | |
| Zumbrunnen & Wittwer (2 fac.) | Monroe | | | | | | | |
| Miller & Frautschy | Monroe | | | | | | | |
| Gottlieb Wittwer | Monroe | | | | | | | |
| Jac. Kegetz | Monroe | | | | | | | |
| Jac. Stauffacher | Monroe | | | | | | | |
| J. U. Elmer | Monroe | | | | | | | |
| Peter Stauffacher | Monroe | | | 38,000 | | | | 150 |
| John Marty | Monroe | | | | 500 | | | 52 |
| Fred Neuenscheunder | Monroe | | | | | | | |
| G. Draschler | Monroe | | | | | | | |
| Frank Haffner | Monroe | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Paul Kundert | Monroe | | | | | | | |
| G. Beller | Monroe | | | | | | | |
| G. Karlan | Monroe | | | | | | | |
| Jac. Kundert | Monroe | | | | | | | |
| Geo. Figi | Monroe | | | | | | | |
| Weiss & Babler | Monroe | | | | | | | |
| Norman Cole | Brodhead | | | | | | | |
| GREEN LAKE. | | | | | | | | |
| C. Hazen | Ladoga | 30,652 | | | | | | |
| IOWA. | | | | | | | | |
| Bloomfield Factory | Mineral Point | | | | | | | 150 |
| JEFFERSON. | | | | | | | | |
| Olin, Crossfield & Co. | Oakland | 87,682 | | | | | | 275 |
| Fort Atkinson Factory | Oakland | 208,502 | | | | | | 600 |
| Clark & Reynolds | Hebron | 103,000 | | | | | | 325 |
| Whitney's Factory | Ft Atkinson | | | | | | | |
| Wright's Mill Factory | Hebron | | | | | | | |
| Cold Spring Cheese Co. | Whitewater | | | | | | | |
| Old Cold Spring Factory | Whitewater | | | | | | | |
| New Cold Spring Factory | Whitewater | | | | | | | |
| Hebron Factory | Whitewater | | | | | | | |
| Palmyra Factory | Whitewater | | | | | | | |
| Oak Hill Factory | Oak Hill | 150,252 | | | | | | 415 |
| M. N. Seward | Harvey | 102,000 | | | | 1,750 | | 400 |
| Seward & Skinner | Aztalan | 110,000 | | | | 1,250 | | 400 |
| Riverside Factory | Jefferson | 91,632 | | | | | | 300 |
| Faville Grove Factory | Lake Mills | 195,000 | | | | | | 475 |
| E. P. Ingalls | Milford | 116,952 | | | | | | 275 |
| Wm. Galloway | Whitewater | 138,000 | | | | | | 425 |
| Thos. Bussey | Busseyville | 154,694 | | | | | | 400 |

## *Dairy Statistics — Factories, Creameries and Private Dairies* — continued.

| COUNTIES AND NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. of cows to each factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory Make. | Cheese, Private Dairy. | Cheese, Limberger. | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| JEFFERSON — continued. | | | | | | | | |
| Z. Wilson | Palmyra | | | | | | | |
| Concord Cheese Company | Concord | 34,000 | | | | | | 85 |
| C. H. Hosington | Farmington | | | | | | | |
| H. C. Drake | Lake Mills | | | | | | | |
| Merrick's Factory | Whitewater | | | | | | | |
| H. A. Hoffman, Creamery | Jefferson | | | | | | | |
| S. G. Westphall, Creamery | Fort Atkinson | | | | | 6,350 | | 42 |
| H. Merriman, Creamery | Fort Atkinson | | | | | 4,900 | | 20 |
| M. C. Jones, Creamery | Fort Atkinson | | | | | | | |
| Rock Lake Creamery | Lake Mills | | | | | 28,830 | | 125 |
| Edmund King, Creamery | Whitewater | | | | | | | |
| Star Creamery | Lake Mills | 80,000 | | | | 7,000 | | 290 |
| Krogville Cheese Company | Krogville | | | | | | | |
| Union Cheese Company | Lake Mills | 93,590 | | | | | | 320 |
| Koshkonong Cheese Company | Koshkonong | | | | | | | |
| Wm. P. Phillips | Lake Mills | | | | | 11,000 | | 45 |
| C. S. Cartwright, Cheese | Rome | 41,760 | | | | | | 225 |
| H. E. Humphrey[1] | Ixonia Center | | | | | | | 300 |
| Burr Oak Creamery | Fort Atkinson | | | | | 7,000 | | |
| L. B. Root | Whitewater | | | | | 3,400 | | 20 |
| JUNEAU. | | | | | | | | |
| D. C. Robinson | Mauston | 23,511 | | | | | 3,790 | 102 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Wm. Kimball | Union Center | 12,951 | | | | | | 43 |
| F. O. Galla | Elroy | | | | | | | |
| Wm. Hale & Co | Mauston | | | | | | | |
| Robert Camp | Mauston | | | | | 3,600 | | 18 |
| F. O. Galla | Elroy | | | | | | | |
| John Sharf | Union Center | | | | | | | |
| Andrew Mills | Elroy | | | | | | | |
| I. Fleno | Elroy | | | | | | | |
| Wm. Robinson | Elroy | | | | | | | |
| J. J. Smith | New Lisbon | 40,000 | | | | 600 | | 150 |
| J. J. Smith | Melvina | 40,000 | | | | 600 | | 150 |
| J. J. Smith | Burns | 40,000 | | | | 800 | | 150 |
| George Curtis & Co | Mauston | 22,000 | | | | 3,000 | | 75 |
| Millard's Prairie Factory * | Elroy | 52,530 | | | | 13,125 | | 175 |
| D. C. Robinson & Co | Mauston | 23,955 | | | | 3,500 | | 90 |
| KENOSHA. | | | | | | | | |
| E. S. Stanard | Woodworth | 40,000 | | | | | | 200 |
| South Bristol Cheese Factory | Bristol | | | | | | | |
| J. M. Kellogg's Factory | Woodworth | | | | | | | |
| J. M. Wilbur | Wilmot | 28,213 | | | | | | 125 |
| O. C. Stonebreaker | Bristol | | | | | | | |
| J. V. Vosburgh | Richmond, Ill | | | | | | | |
| Maynard & Stevens | Salem | 37,736 | | | | 1,527 | | 180 |
| Geo. H. Booth | Salem | | | | | 22,500 | | 80 |
| J. M. Kellogg | Woodworth | 40,000 | | | | | | |
| Henry G. Blackman | Kenosha | 3,500 | | | | 2,500 | | 75 |
| C. C. Holt | Kenosha | | | | | | | |
| Simmons & Co | Kenosha | | | | | | | |
| W. C. White | Kenosha | | | | | | | |
| M. B. Hubbard | Pleasant Prairie | 52,176 | | | | 1,620 | | |
| Eureka Creamery | Salem | | | | | 15,000 | | 65 |
| C. Williams | Bristol | | | | | 5,050 | | 26 |
| O. C. Stonebreaker | Bristol | 12,000 | | | | | | 70 |

* Butter, spring and fall.

*Dairy Statistics — Factories, Creameries and Private Dairies* — continued.

| COUNTIES AND NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. of cows to each factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory Make. | Cheese, Private Dairy. | Cheese, Limberger | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| **LA CROSSE.** | | | | | | | | |
| L. R. Bowen | Bangor | 14,700 | | | | 1,000 | | 150 |
| **LA FAYETTE.** | | | | | | | | |
| Darlington Cheese Co | Darlington | 28,000 | | | | | | 100 |
| **MANITOWOC.** | | | | | | | | |
| Lilloffe & Ecke | Kiel | | | | | | | |
| A. Ecke | Meemee | | | | | | | |
| Daniel Kuentz | Newtonberry | | | | | | | |
| Pierce Bros | Hika | 38,317 | | | | | | 170 |
| Nelson Darling | Cato | 10,150 | | | | | | 75 |
| **MILWAUKEE.** | | | | | | | | |
| Wauwatosa Cheese Co | Wauwatosa | | | | | | | |
| F. A. Yankkee | Northern Junction | | | | | | | 140 |
| A. Thomas & Son | Good Hope | | | | | 3,950 | | 35 |
| **MONROE.** | | | | | | | | |
| Cataract Factory | Cataract | 12,065 | | | | 1,350 | | 41 |
| N. W. Creamery | Tomah | 50,000 | | | | 4,000 | | 180 |
| Charles E. Bell | Tomah | 12,000 | | | | | | 65 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sparta Factory | Sparta | 39,154 | | | | | | 100 |
| Leon Valley | Leon | | 10,000 | | | | | 50 |
| Hunt's Mills | Medina | 15,000 | | | | | | |
| T. Regez | Monroe | 48,000 | | | | | | 150 |
| T. Regez | Monroe | | | 100,000 | | | | |
| T. Regez | Monroe | | | | 100,000 | | | |
| Jacksonville Factory | Tomah | 30,000 | | | | | | 125 |
| OUTAGAMIE. | | | | | | | | |
| Louis Perrott | Granville | | | | | | | |
| E. M. Gowell | Granville | | | | | | | |
| H. Brockway | Appleton | | | | | | | |
| H. M. Armstrong | Fredonia | | | | | | | |
| Edward Nye | Fredonia | | | | | | | |
| OZAUKEE. | | | | | | | | |
| Ingersoll & Eckle | Port Washington | 82,000 | | | | | | 450 |
| Butter made in the county | | | | | | | 480,000 | |
| RICHLAND. | | | | | | | | |
| G. J. Carswell & Son | Lone Rock | | | | | | | |
| H. L. Eaton | Lone Rock | 174,577 | | | | | | 440 |
| A. Shaunce | Bear Valley | | | | | | | |
| Geo. Turner | Sextonville | | | | | | | |
| A. & D. Beckwith | Lone Rock | 111,917 | | | | 2,000 | | 275 |
| Barker's Factory | Bear Valley | | | | | | | |
| ROCK. | | | | | | | | |
| Bent, Cheever & Pierce | Clinton | 165,104 | | | | | | |
| B. S. Hoxie | Cooksville | 114,242 | | | | | | 600 |
| Wm. Zimmerman | Edgerton | | | | | | 3,194 | 20 |
| James Clough | Edgerton | | | | | | | |
| E. Devereux | Evansville | 325,000 | | | | | | 1,000 |

## *Dairy Statistics — Factories, Creameries and Private Dairies* — continued.

| COUNTIES AND NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. of cows to each factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory, Make. | Cheese, Private, Dairy. | Cheese, Limberger | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| ROCK — continued. | | | | | | | | |
| Clover Dale Factory | Lima Center | 90,000 | | | | 3,000 | | 300 |
| Godfrey's Factory | Lima Center | | | | | | | |
| SHEBOYGAN. | | | | | | | | |
| J. A. Smith | Sheboygan | | | | | | | |
| H. Habighurst. | Sheboygan | | | | | | | |
| G. W. Weeden | Sheboygan | | | | | | | |
| F. Widder | Sheboygan | | | | | | | |
| J. Sieber | Sheboygan | | | | | | | |
| W. Springborn | Sheboygan | | | | | | | |
| J. G. Peacock | Sheboygan Falls | | | | | | | |
| A. & A. B. Dye | Sheboygan Falls | | | | | | | |
| D. Kuentz | Sheboygan Falls | | | | | | | |
| Mrs. C. Strong | Sheboygan Falls | | | | | | | |
| S. H. Conover | Plymouth | | | | | | | |
| S. A. Rickmeier | Plymouth | | | | | | | |
| H. Graef | Plymouth | | | | | | | |
| Gilman Factory | Plymouth | | | | | | | |
| A. Kuentz | Howard's Grove | | | | | | | |
| W. Siemers | Howard's Grove | | | | | | | |
| J. Ochs | Howard's Grove | | | | | | | |
| C. Grœne. | Johnsonville | | | | | | | |
| J. Kæstner | Johnsonville | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| E. Montgomery | Greenbush | | | | | 200 | | |
| H. Eiche | Mosel | | | | | | | |
| G. W. Bradley | Scott | | | | | | | |
| Harmon's Factory | Winooski | | | | | | | |
| M. Lemmin | Edwards | | | | | | | |
| R. M. Johnson | Rathbun | | | | | | | |
| W. Crosby & Co | Cascade | | | | | | | |
| W. Berkle | Howard's Grove | | | | | | | |
| M. Maher | Sheboygan Falls | | | | | | | |
| John Dessau | Sheboygan Falls | | | | | | | |
| C. Altrop | Mosel | | | | | | | |
| Wilson J. Stock | Sheboygan | | | | | | | |
| Wilson Six Corners | Sheboygan | | | | | | | |
| C. Rockwell | Hingham | | | | | | | |
| H. Feldman | Elkhart | | | | | | | |
| J. Negler | Russell | | | | | | | |
| A. D. De Land | Sheboygan Falls | 46,655 | | | | | | 110 |
| Wm. Stronko | Cedar Grove | 100,000 | | | | | | 200 |
| Robt. A. Swann | Cascade | 25,000 | | | | | | 101 |
| Holden Bros | Sheboygan Falls | 72,000 | | | | | | 200 |
| J. Littlefield | Plymouth | 47,955 | | | | | | 135 |
| J. Misselink | Gibbsville | 48,900 | | | | | | 130 |
| S. Reiniking | Gibbsville | 70,683 | | | | | | 200 |
| Mather Bros, | Sheboygan Falls | 72,000 | | | | | | 204 |
| Jas. Slyfilla | Hingham | 54,785 | | | | | | 160 |
| C. F. F. Karstaedt | Mosel | 102,954 | | | | | | 300 |
| A. Dye | Waldo | 128,112 | | | | | | 325 |
| S. A. Rickmeier | Plymouth | 59,000 | | | | | | 180 |
| F. A. Streblow | Johnsonville | 82,801 | | | | | | 222 |
| A. D. Hanson | Sheboygan Falls | 118,740 | | | | | | 240 |
| L. Hills | Glenbulah | 15,206 | | | | | | 55 |
| J. A. Smith | Glenbulah | 63,713 | | | | | | 120 |
| H. J. Bamford | Plymouth | 97,953 | | | | | | 247 |
| F. C. Joems | Winooski | 15,011 | | | | | | 40 |
| M. L. Yoemans | Scott | 32,279 | | | | | | 125 |
| Mansfield & Sons | Greenbush | 38,000 | | | | | | 120 |

## *Dairy Statistics. — Factories, Creameries and Private Dairies* — continued.

| COUNTIES AND NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. of cows to each factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory Make. | Cheese, Private Dairy. | Cheese, Limberger. | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| **SHEBOYGAN — continued.** | | | | | | | | |
| Wm. Hutman | Sheboygan | 49,884 | | | | | | 150 |
| Carl Reich | Sheboygan | 131,125 | | | | | | 385 |
| Wm. Koch (3 factories) | Plymouth | 159,498 | | | | 200 | | 475 |
| Pierce Bros | Sheboygan Falls | 112,538 | | | | | | 400 |
| John Kalstiner | Johnsonville | 47,780 | | | | | | 130 |
| G. W. Bradley | Scott | 30,096 | | | | | | 150 |
| Slyfield & Thompson | Hingham | 69,480 | | | | | | 210 |
| Hiram Conover | Plymouth | 90,000 | | | | 500 | | 300 |
| Hiram Smith | Sheboygan Falls | | | | | 15,893 | | 50 |
| **SAUK.** | | | | | | | | |
| Tuckerville Cheese Co | Loganville | 11,000 | | | | | | 90 |
| **VERNON.** | | | | | | | | |
| Wm. F. Satto | Hillsborough | 14,000 | | | | 600 | | 55 |
| **WAUKESHA.** | | | | | | | | |
| Olin & Clinton | Waukesha | 80,000 | | | | | | 375 |
| T. C. Dousman | Waterville | 120,000 | | | | | | |
| B. R. Hinckley | Oconomowoc | 106,063 | | | | | | 390 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Monterey Factory | Monterey | | | | | | |
| Frank Shultis | Waukesha | | | | | | |
| Thomas Steele | Genesee | 115,000 | | | | | 450 |
| Richard Milton | Eagle | | | | | | |
| Frank Shultis | Mukwonago | | | | | | |
| Waterville Factory | Waterville | 120,000 | | | | | 500 |
| Rose Glen Creamery | Waukesha | 60,174 | | | 12,163 | | |
| Dell Ostrander | Monterey | 25,000 | | | | | 120 |
| M. Rowell | Hartland | 6,000 | | | 2,000 | | 35 |
| Wauwatosa Cheese Co | Elm Grove | 43,197 | | | | | |
| WAUSHARA. | | | | | | | |
| A. H. Wheaton | Auroraville | 59,646 | | | | | 200 |
| R. P. Colt | Poysippi | 61,056 | | | | | 248 |
| WAUPACA. | | | | | | | |
| Weyauwega Cheese Factory | Weyauwega | 56,103 | | | | | 180 |
| S. A. Oaks | Ogdensburg | | | | | | |
| Charles Gibson | Lind | 49,000 | | | | | 250 |
| Wm. Hamilton | Clintonville | 5,000 | | | | | 25 |
| Thomas W. Rhodes | Weyauwega | | | | 2,700 | | 13 |
| Craig & McCord | Royalton | | | | | | |
| New London Factory | New London | | | | | | |
| WALWORTH. | | | | | | | |
| Pearson Brothers | Sharon | | | | | | |
| S. G. Nichols | Geneva Lake | | | | | | |
| S. Lytle, Oak Ridge Creamery | Elkhorn | | | | 4,200 | | 20 |
| D. L. Flack | Elkhorn | | | | 6,000 | | 25 |
| J. G. Flack | Elkhorn | | | | | | |
| J. A. Chase | Elkhorn | | | | | | |
| Chase, Berner & Caswell | Elkhorn | 95,000 | | | | | 450 |
| C. R. Beach | Whitewater | 8,264 | | | | | 30 |

### *Dairy Statistics — Factories, Creameries and Private Dairies* — continued.

| COUNTIES AND NAME OF FACTORY OR PROPRIETOR. | P. O. ADDRESS. | NUMBER OF POUNDS. | | | | | | No. Cows to each Factory. |
|---|---|---|---|---|---|---|---|---|
| | | Cheese, Factory Make. | Cheese, Private Dairy. | Cheese, Limberger. | Cheese, Swiss. | Butter, Creamery. | Butter, Private Dairy. | |
| WALWORTH — continued. | | | | | | | | |
| H. A. Conger | Whitewater | 90,000 | | | | | | 275 |
| R. Springsteen | Whitewater | 92,057 | | | | 4,000 | | 275 |
| R. S. Benson | Geneva Junction | | | | | 6,500 | | 30 |
| Cheever & Pierce | Delavan | 71,266 | | | | | | |
| C. B. McCanna | Springfield | 255,000 | | | | | | 350 |
| C. B. McCanna | Spring Prairie | | | | | | | 400 |
| C. B. McCanna | Rochester | | | | | | | 200 |
| H. & J. D. Godfrey | Whitewater | 79,000 | | | | | | 250 |
| Westville Cheese Co | Elkhorn | 30,000 | | | | 1,500 | | 150 |
| WASHINGTON. | | | | | | | | |
| Jacob Hamm | Kohlsville | | | | | 3,600 | | 50 |
| WINNEBAGO. | | | | | | | | |
| John Ryfe | Oshkosh | | | | | | | |
| Crist. Perrin | Oshkosh | | | | | | | |
| Crist. Boss | Oshkosh | | | | | | | |
| C. Bellinger | Oshkosh | | | | | | | |
| Mr. Kettle | Oshkosh | | | | | | | |
| George Rogers | Oshkosh | | | | | | | |
| Charles Vedder | Eureka | 42,832 | | | | | | 210 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| F. Stune | Waukau | | | | | | | |
| C. F. Winslow | Omro | 30,000 | | | | | | 250 |
| S. S. Walter | Eureka | | | | | | | |
| Bishop's Cheese Factory | Omro | | | | | | | |
| J. G. Picket | Picket's Station | 56,000 | | | | | | 200 |
| F. W. Wheeler | Neenah | 50,000 | | | | | | 150 |
| Henry Searl's Factory | Picket's Station | | | | | | | |
| Emery Davis' Factory | Picket's Station | | | | | | | |
| Peas' Factory | | | | | | | | |
| D. Grossman | Omro | 180,000 | | | | | | 450 |
| Christ Boss | Clemansville | | | 32,000 | 9,000 | 1,500 | | 120 |